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ABSTRACT

These materials allow instructors to provide learning experiences that stress the equal importance of academic and vocational education and the personal and social matters related to the work ethic. Instructional materials are provided in 15 clusters: agribusiness and natural resources; business and office; communications and media; construction; consumer and homemaking; environment; fine arts and humanities; health; hospitality and recreation; manufacturing; marine science; marketing and distribution; personal services; public services; and transportation. Each cluster may contain several activities, which have the following sections: purpose of activity; basic skills applications; approximate time required; materials needed; "before you start"; step-by-step procedure; follow-up; and activities. (NLA)

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Basic Skills Applications in Career Investigation

Mathematics ▪ Science ▪ Social Studies
Communications ▪ Productive Work Habits

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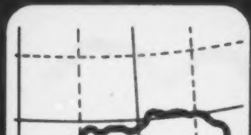

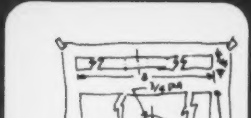

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Basic Skills Applications in Career Investigation

Prepared by
Mary W. Hendrix

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in cooperation with
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To ensure educational equity, this material has been reviewed to eliminate bias or stereotyping.

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Mary W. Hendrix
Director

Introduction

The State Board of Education's mission for public education calls for students to receive an education that will enable them to live and work in a changing future. In recognizing this mission, the Texas Education Agency issued a request for application calling for the development of instructional materials which would bridge the gulf between academic and vocational education.

Basic Skills Applications in Career Investigation is the result of the funding of this contract. This publication will allow instructors to provide learning experiences for students which will, at an early grade level, stress the co-equal importance of academic and vocational education and the personal and social matters related to the work ethic. This publication will also help students acquire a realistic perception of career opportunities.

Mary W. Hendrix
Director

Cluster: Agribusiness and Natural Resources
Activity I: Estimating Timber

A. **Purpose of Activity:** This activity simulates the nature of work associated with the forestry job family.

> **Note:** *You are encouraged to tailor this activity, as needed, to fit your local teaching situation.*

B. **Basic Skills Applications:** In completing this activity, students will apply the following fundamental academic principles:

- Utilize concepts and skills of measurement using relationships to standards.
- Analyze geometric concepts.
- Analyze growth rates under varied conditions.
- Observe plants in their natural environment.
- Observe the effects of forces on matter.

C. **Approximate Time Required:** One to two class periods.

> **Note:** *Depends upon amount of time spent reviewing careers prior to activity and upon the location of the area to be used in estimating timber.*

D. **Materials Needed:**

Material	**Source**
Wooden yardsticks (one for each group formed)	Local lumber yard
White glue, one small bottle	School bookstore
Tree scaling stick (Doyle rule)	Included
Board Feet Table	Included

E. **Before You Start:**

1. Obtain 5 or 6 yardsticks from a local lumber yard (these are normally given away as promotional items). You will need one yardstick for each group formed.
2. Reproduce one copy of the attached Doyle Rule patterns for each yardstick obtained. Cut the patterns apart (paper cutter suggested to ensure even edges) and glue on both sides of the yardstick, one pattern on each side.
3. Designate an area (near campus) which will be used for estimating timber.
4. Consider securing a guest speaker whose career is classified in the forestry job family as a means of providing a focus for instruction.
5. Consider coordinating this activity with math and science teachers to show the relationship between this occupational area and these school subjects.

F. Step-by-Step Procedure:

1. Review careers classified in the forestry job family (pages 126-127 *Career Opportunities Instructional Guide*).
2. In a class discussion, have the students identify items constructed from wood that they use every day, such as homes, paper, pencils, tools, or toys. Stress the importance of this occupational area by pointing out that, in order to provide for the future needs of society, more trees must be grown faster on less land. Therefore, forest tree genetics is important.
3. Exhibit the previously constructed tree scaling stick (Doyle Rule). Using the instructions printed on the stick, demonstrate to the class how to measure the diameter and vertical height in a standing tree. Explain that this is a real task accomplished prior to the sale and harvesting of timber. Also explain a board foot (12" x 12" x 1"), the unit of measure for lumber.
4. Divide the class into small groups (4 to 6 persons), and let each group identify a leader and recorder. Issue a Doyle Rule to each group.
5. Direct each group to make independent estimates of the standing trees in the designated area as follows:

   Record in inches the trunk diameter 4½ feet from the ground.

   Record the vertical height of each tree in terms of the number of 16-foot logs that could be obtained from it.
6. After estimating all designated trees, each group should use the Board Feet Table or the table on the Doyle Rule to calculate the total amount of usable board feet of lumber in these trees.
7. Conclude the activity with a class discussion to develop a consensus as to the correct estimate of board feet of lumber.

G. Follow-Up:

1. Discuss advantages and disadvantages of the occupations classified in the forestry job family.
2. Discuss the areas of the state and country where occupations in this job family are most likely to be found.
3. Determine the cost of a board foot of lumber (from a local lumber yard) and have students compute the worth of the standing timber.

LEFT END

DIAMETER OF LOG (Inches)		5	6	7
Log Scale Stick- Doyle Rule Measure average diameter inside of bark at small end of log. Read contents in board teet.	8 Ft. Logs 10 Ft. Logs 12 Ft. Logs 14 Ft. Logs 16 Ft. Logs	For logs under 8 inches give same scale in board feet as 8 inch log of same length		

8	9	10	11	12	13	14
8	12	18	24	32	40	50
10	16	22	31	40	51	62
12	19	27	37	48	61	75
14	22	31	43	56	71	87
16	25	36	49	64	81	100

15	16	17	18	19	20	21
60	72	84	98	112	128	144
76	90	106	122	141	160	181
91	108	127	147	169	192	217
106	126	148	171	197	224	253
121	144	169	196	225	256	289

22	23	24	25	26	27	28
162	180	200	220	242	264	288
202	226	250	276	302	331	360
243	271	300	331	363	397	432
283	316	350	386	423	463	504
324	361	400	441	484	529	576

29	30	31	32	33	34	35	36
312	338						
391	422	Name ______________					
469	507						
547	591	Address ______________					
625	676						

Directions: Cut and glue on yardstick, from top

RIGHT END

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Directions: Cut and glue pieces on yardstick from left to right.

5

LEFT END

DIAMETER OF TREE(In Inches)		6	7	8	9	10
Tree Scale Stick- Doyle Rule	1 16 Ft. Log			14	14	14
	2 16 Ft. Logs				20	20
	3 16 Ft. Logs					22
	4 16 Ft. Logs					

← **Sight end of stick at stump height** 1 | **log**

11	12	13	14	15	16	17	18	19	20	21
22	29	38	48	60	72	86	100	118	135	154
32	43	59	75	96	116	140	164	194	225	260
38	53	73	93	121	149	182	215	256	297	344
	56	80	103	136	170	209	248	297	346	404

Number of 16 foot logs 2 | **logs**

22	23	24	25	26	27	28	29	30	31	32
174	195	216	241	266	292	317	346	376	408	441
295	332	370	414	459	505	551	604	658	717	776
392	444	496	558	619	684	750	824	898	983	1068
462	522	582	660	737	814	890	980	1069	1176	1283

3 | **logs**

34 36 38 40 42 44

When obtaining diameter, hold stick 25 inches from eye horizontally against tree at height of 4½ feet. When obtaining height, stand 66 feet from tree; hold stick vertically 25 inches from eye

FOR WOODLAND MANAGEMENT AS

4 | **logs**

46 48 50 52 54 56 58 60 62 64 66 68 70

For average southern timber read scale direct. (Form Class 78) Add 10% for trees that have grown in thick strands, are free of limbs for 30 or more feet, and have little taper. Subtract 10% for rough or open grown with large low limbs and a fast taper in lower 30 feet.

SISTANCE OR ADVICE SEE YOUR COUNTY AGENT OR LOCAL FORESTER

5 | **logs**

RIGHT END

Board Foot Table

Diameter Chest High	Number of 16-foot Logs				
	1	1.5	2	2.5	3
(Inches)		(Board Feet)			
10	14	17	20	21	22
11	22	27	32	35	38
12	29	36	43	48	53
13	38	48	59	66	73
14	48	62	75	84	93
15	60	78	96	108	121
16	72	94	116	132	149
17	86	113	140	161	182
18	100	132	164	190	215
9	118	156	194	225	256
20	135	180	225	261	297
21	154	207	260	302	344
22	174	234	295	344	392
23	195	264	332	388	444
24	216	293	370	433	496
25	241	328	414	486	558
26	266	362	459	539	619
27	292	398	505	594	684
28	317	434	551	650	750
29	346	475	604	714	824
30	376	517	658	778	898
31	408	562	717	850	983
32	441	608	776	922	1068

Add 10% for trees that have grown in thick stands that are free of limbs for 30 or more feet and that have very little taper. Subtract 10% for rough or open grown trees that have large low limbs and a fast taper in the lower 30 feet.

Chest high equals 4½ feet from the ground.

Cluster: Agribusiness and Natural Resources
Activity II: Seed Germination

A. **Purpose of Activity:** This activity simulates the nature of work associated with the research job family.

B. **Basic Skills Applications:** In completing this activity, students will apply the following fundamental academic principles:

- Use a specialized and technical vocabulary.
- Identify a sequential order of events.
- Use the fundamentals of grammar, punctuation, and spelling.
- Summarize and generalize.
- Follow written and spoken directions, including substeps.
- Calculate proportion and percent.
- Observe the growth pattern of a selected plant.

C. **Approximate Time Required:** For this and subsequent "growing activities" in this cluster, several days will be required. Therefore, between the start and finish of these activities, other appropriate classroom activities need to be planned.

D. **Materials Needed:**

Material	Source
Commercial paper towels (two per student)	Local discount store or supplied by school
Seeds—beans, peas, grass, etc. (at least two per student) Be sure to get label specifying germination percentage.	Local feed store or plant nursery
Old newspapers	Supplied by teacher or students
Water Source	Local school
How to Read a Package Label	Included
Seed Bed Preparation	Included

E. **Before You Start:**

1. If the C.I. classroom is not heated after school hours, consider scheduling this activity during the warmest month of school.
2. Consider coordinating this activity with math and/or science teachers.
3. Arrange for items 1-6 in Section D. Determine the type seeds to be used.
4. Either post the Seed Bed Preparation Sheet or draw it on the chalkboard.
5. Post the sheet How to Read a Package Label, or reproduce it for distribution to students.
6. Since this activity will extend over several days, plan to assign several students to moisten the individual seed beds daily.

F. Step-by-step Procedure:

1. Discuss different careers classified in the research job family (pages 130-131, *Career Opportunities Instructional Guide*).
2. Briefly discuss why the percentage of seed germination is important. For example:

   The seed producer selects stock for sale, identifies stock for research and improvement, and ensures that his/her products are competitive.

   The seed consumer purchases the most economical seed, determines the methods of sowing and planting, allows for crop harvest forecasting, and determines amounts of fertilizers and other chemical support required for maximum harvest and quality of plant.
3. Refer to and discuss How to Read a Package Label.
4. Fold old newspapers to form a pad about six (6) inches wide and ten (10) feet long on which to lay the seed beds. A pad this size will accommodate at least twenty-five (25) individual seed beds placed side by side. The purpose of this pad is to help maintain the moistness of the seed beds while preventing the water from spreading excessively. Ideally, this pad should be placed on a concrete window ledge with plastic trash bags or a piece of wood underneath to prevent damage or discoloration of the classroom facility.

   Note: *If your classroom does not contain windows, a growing light can be used.*
5. Distribute two paper towels to each student. Call attention to the posted Seed Bed Preparation Sheet and demonstrate how to fold the towels into a seed bed.
6. Instruct the students to print (carefully so as not to tear the towels) the following information on one side of the folded seed bed:

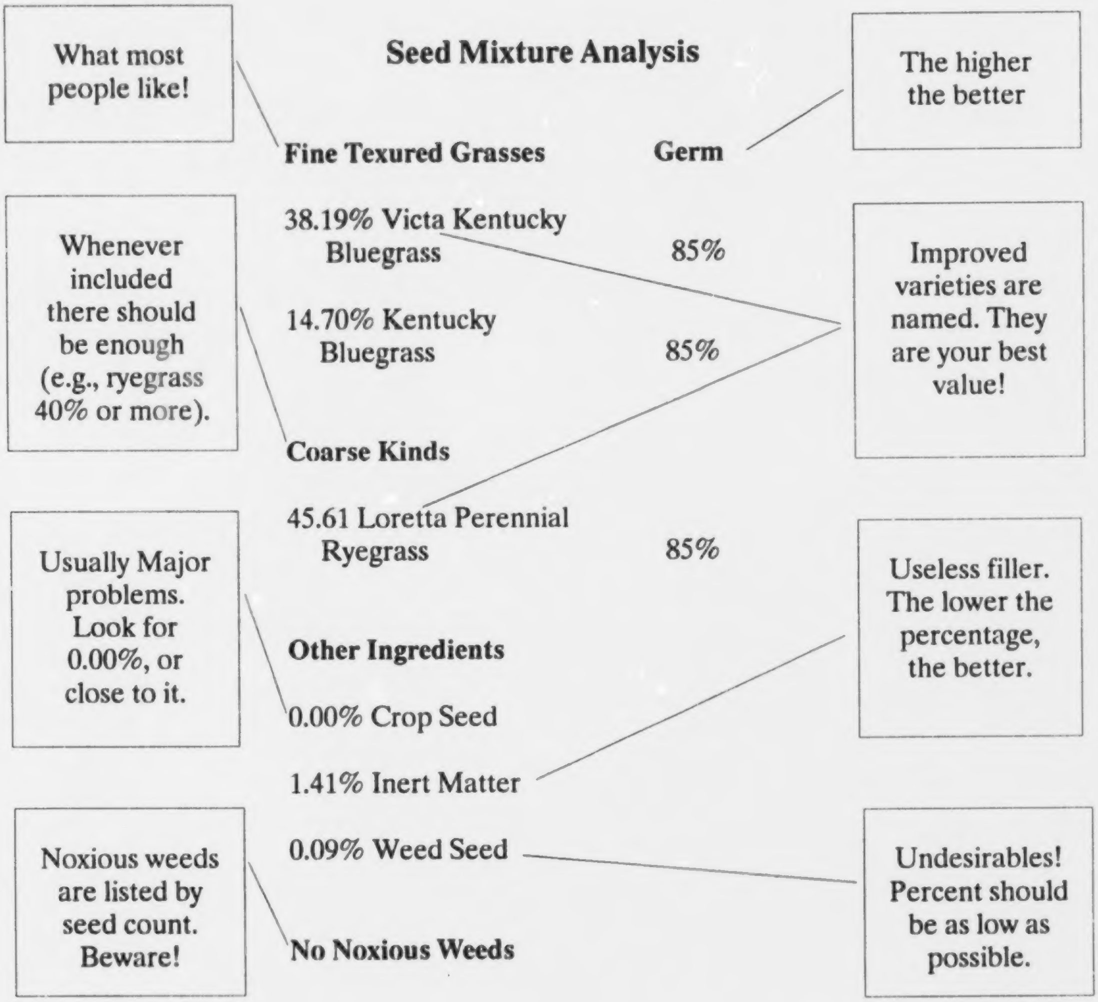
   Student name
   Class period
   Type of seed
   Number of seeds
   Date
7. Distribute at least two seeds to each student. Tell students to place them in the center of the seed bed. Record the total number of seeds for the class.
8. Have the students place the seed beds side by side on the newspaper pad and moisten each thoroughly.
9. Each succeeding day check for germination of the seeds and remoisten each seed bed. You may want to assign this responsibility to specific individuals.
10. Two days after the first seeds germinate, have the students retrieve their seed beds prior to watering. Direct the students to open their beds and count the number of seeds which germinated.
11. Have students divide the total number of seeds planted by the total number which germinated or sprouted. The resulting quotient is the percentage of germination. Compare the percentage obtained with that printed on the seed label. Differences can be explained by the fact that seed producers perform their research under ideal conditions.

12. Have students prepare a technical report which describes how the percentage of germination was determined in this experiment.

G. Follow-Up:

1. Discuss advantages and disadvantages of the occupations classified in the research job family of agribusiness and natural resources.
2. Discuss places of employment (in your area) which would hire applicants in this job family.
3. Have students evaluate their suitability/unsuitability for employment in research in agribusiness or natural resources.

How To Read A Package Label



What most people like!

The higher the better

Seed Mixture Analysis

Fine Texured Grasses	**Germ**
38.19% Victa Kentucky Bluegrass	85%
14.70% Kentucky Bluegrass	85%
Coarse Kinds	
45.61 Loretta Perennial Ryegrass	85%

Other Ingredients

0.00% Crop Seed

1.41% Inert Matter

0.09% Weed Seed

No Noxious Weeds

Whenever included there should be enough (e.g., ryegrass 40% or more).

Improved varieties are named. They are your best value!

Usually Major problems. Look for 0.00%, or close to it.

Useless filler. The lower the percentage, the better.

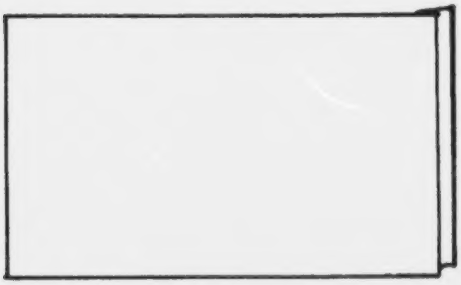
Noxious weeds are listed by seed count. Beware!

Undesirables! Percent should be as low as possible.

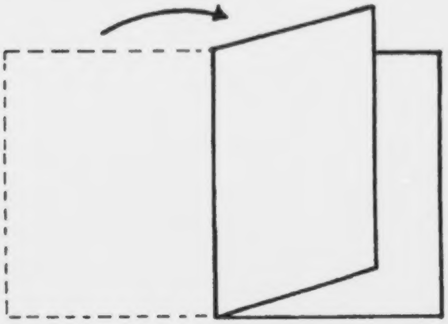
Adapted from *Lawn Care*, Spring 1978, by the O.M. Scott Company.

Seed Bed Preparation

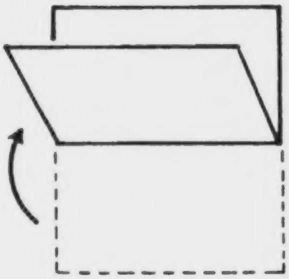
Directions: Take two paper towels, place one directly on top of the other, and fold according to the instructions below.



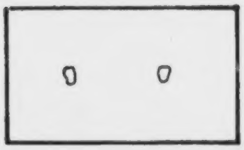
Step 1. Place two paper towels one on top of the other.



Step 2. Fold two towels together to half size.



Step 3. Fold two towels together to quarter size.



Step 4. Place seeds in the center fold of the quarter size seed bed and moisten thoroughly.

Cluster: Agribusiness and Natural Resources
Activity III: C.I. Farm

A. **Purpose Of Activity:** This activity simulates the nature of work associated with the productive agriculture job family.

B. **Basic Skills Applications:** In completing this activity, students will apply the following fundamental academic principles:
- Recognize the importance of soils.
- Determine the properties of soil (pH, color, texture, depth, permeability, slope, and fertility).
- Recognize patterns in nature.
- Demonstrate manipulative laboratory skills.

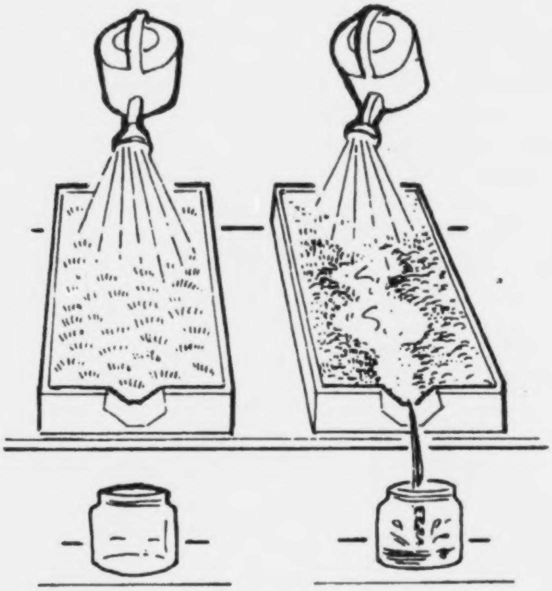
C. **Approximate Time Required:** Since actual growing time will extend this activity as much as two weeks or more, consider planning other activities during this period of time. If the classroom is unheated after school hours, this activity will have to be delayed until the warm months of the semester or an alternate site selected.

D. **Materials Needed:**

Material	**Source**
Package of radish or flower seeds (one per class)	Local discount store or feed supply store
Hand and gardening tools	Local discount store or school maintenance
Fertilizer	Same as above
Soil and water source	Local school
Soil test boxes (constructed according to the following directions)	Lumber company
-OR-	
Small plastic containers (if using flower seeds)	Discount store or nursery

If using soil test boxes:

Construct two boxes about 16 inches long, 12 inches wide, and 4 inches deep. Make the boxes watertight by lining them with plastic trash bags, tin, or tar paper. At one end of each box cut a V-notch (1 to 1.5 inches deep) and fit with a spout cut from an empty tin can. For assembly, 4d coated box nails are suggested. Use the following drawing as a model for construction.



E. Before You Start:

Note: *Variations of this activity include: raising onions, flowers, an entire garden, etc.*

1. Consider coordinating this activity with science teachers.
2. Obtain materials and plan for water and soil source.
3. Clear out-of-class activities with the appropriate school authorities.
4. Become familiar with the planting/growing instructions on the back of the seed packages.
5. Read over Activities IV and V, Fruits of Labor and Beautify your School, because they explain how the crop grown in this activity will be harvested and prepared for consumption.

F. Step-by-Step Procedure:

1. Explain to students that workers involved in productive agriculture occupations provide the food that feeds our country and the flowers and other decorative plants that provide beauty. Refer to examples of careers found on page 130 of the *Career Opportunities Instructional Guide*.

2. Explain that students will be participating in an activity which simulates the work tasks of a producer of agricultural products.
3. Identify specific tasks students will have to perform.

    - Digging the soil
    - Making the seed bed
    - Cleaning up debris
    - Preparing the soil/fertilizer mixer
    - Planting the seeds
    - Daily water and care
    - Checking growth rate

4. Make student assignments (involving as many as possible). Consider letting half the class do this activity (C.I Farm) and half do the harvesting and preparation for consumption (Activity IV Fruits of Labor for radish growers; Activity V Beautify Your School for flower growers.)
5. Follow the planting and growing instructions on the seed packages, and plant the crop.
6. Maintain the "Farm" until the crop has reached a sufficient size for harvest. Then, shift to the next activity.

G. Follow-Up:

1. Have the students discuss the work environment of the farmer and others in productive agricultural careers.
2. Prepare a written list of the kinds of crops produced in our state.

    Note: *The county extension agent will have materials which will provide this information.*

3. Discuss the advantages and disadvantages of the careers classified in the productive agriculture job family.
4. Have students find out the price their crop would sell for in a local grocery store or nursery.
5. Discuss reasons why many productive agriculture workers are experiencing financial difficulty.
6. Have students evaluate their suitability/unsuitability for employment in the productive agriculture job family.

Cluster: Agribusiness and Natural Resources
Activity IV: Fruits of Labor

Note: *This activity is for students who raised radishes in Activity III.*

A. **Purpose of Activity:** This activity simulates the nature of work associated with the processing and marketing job family.

B. **Basic Skills Applications:** In completing this activity, students will apply the following fundamental academic principles:

- Follow both spoken and written instructions.
- Classify objects according to prescribed procedures.
- Utilize the properties and relationships of geometric shapes and their application.

C. **Approximate Time Required:** One class period.

D. **Materials Needed:**

Material	Source
Radishes	Grown during previous activity
Paper napkins, one per student	Local discount store
Plastic sandwich bags, one box	Local discount store
Vegetable peeler (2)	Home economics teacher
Paring knives (2)	Home economics teacher
Salt shakers, filled (2)	Home economics teacher
Plastic containers, Cool Whip, ice cream, or similar (8)	Teacher or student supplied
Grading fixtures (to be constructed)	Plans included
Source of water	School
Vegetable processing line sheet	Included

E. **Before You Start:**

1. Make sure the radishes are of sufficient size (3/4-in. diameter) to harvest. Actual harvesting should take place on the day of the activity.
2. Obtain all the materials listed in Section D. Request students to assist. Be sure to provide secure, dry storage for items until actual use.
3. Consider coordinating this activity with the home economics teacher.
4. Construct the grading fixtures from attached plans. The shop teacher can provide materials and assistance.
5. Arrange for a water source to wash the radishes.
6. Draw on the board or reproduce the attached example of the vegetable processing line.

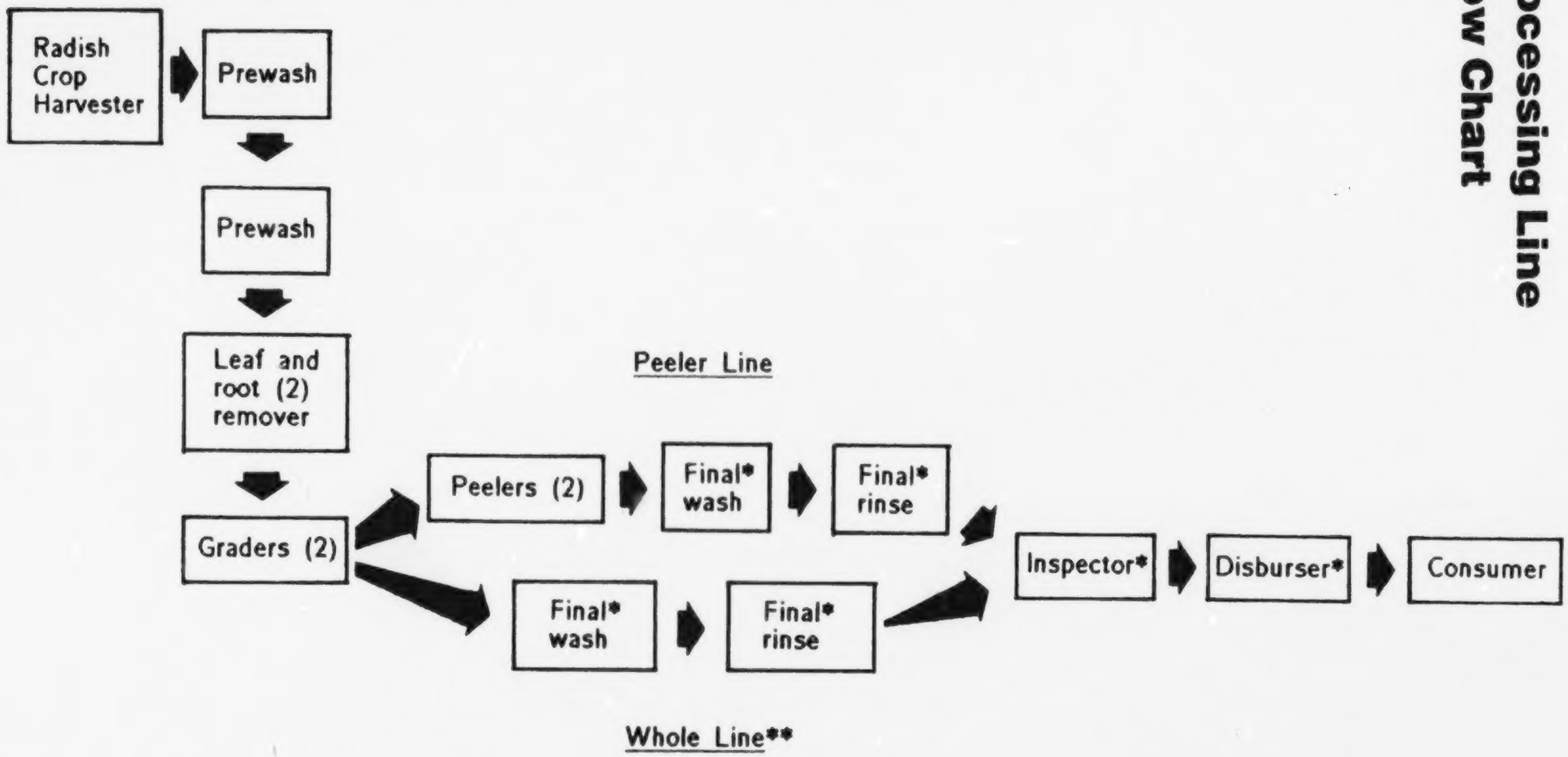
F. Step-by-Step Procedure:

1. Discuss those careers classified in the processing and marketing job family (page 129 of the *Career Opportunities Instructional Guide*.)
2. Explain to the class that this is a continuation of the previous activity and that they will perform as workers in a food processing plant.
3. Call attention to the processing line previously drawn on the board. Explain that this activity is similar to the mass production assembly line used in the Manufacturing Cluster. Ask students to modify the processing to fit their local classroom.
4. Arrange the classroom furniture and materials to satisfy the requirements of the processing line on which the class has decided.
5. Consider selecting/electing a student to be the processing line supervisor.
6. Assign worker roles.
7. Harvest and prepare the radishes for eating.
8. Conclude the activity by distributing the prepared radishes equally and allowing the students to eat them.

G. Follow-Up:

1. Discuss the advantages and disadvantages of the careers classified in the processing and marketing job family.
2. Discuss why personal cleanliness is so important in this job family.
3. Discuss the effect crop failure would have on food processing occupations.
4. Have students evaluate their suitability/unsuitability for employment in the processing and marketing job family.

Processing Line Flow Chart


Radish Crop Harvester
Prewash
Prewash
Leaf and root (2) remover
Graders (2)
Peeler Line
Peelers (2)
Final* wash
Final* rinse
Final* wash
Final* rinse
Whole Line**
Inspector*
Disburser*
Consumer

* Workers in these positions should work with hands encased in a plastic sandwich bag to keep food germ free

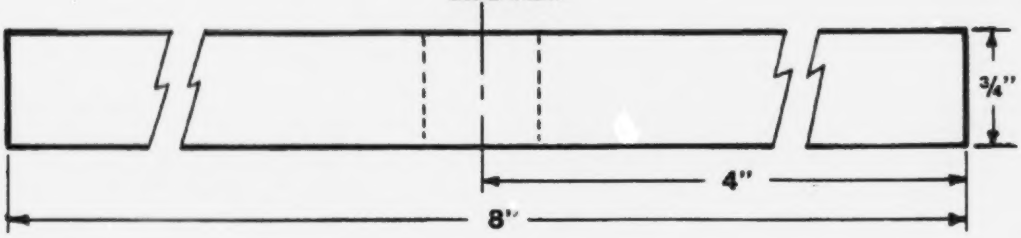
** For radishes less than 3⁄4-in. in diameter.

Grading Fixture Plans

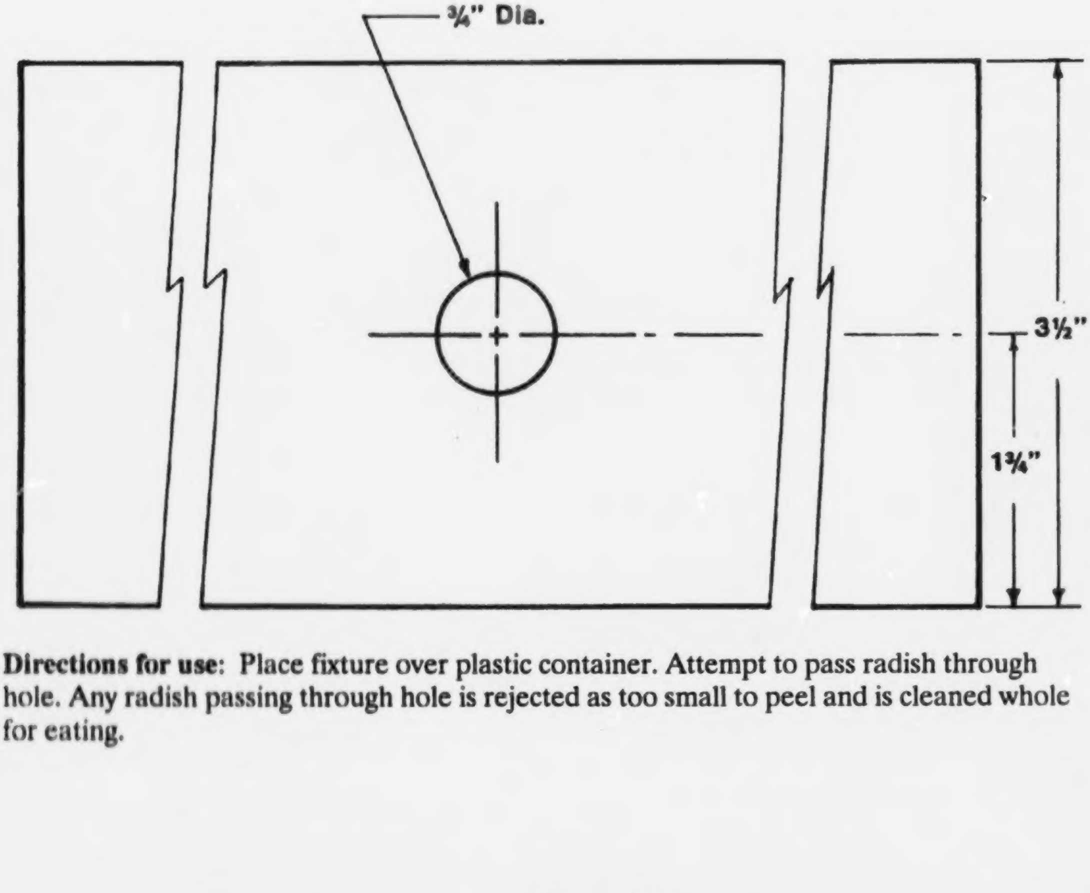
Direction for construction: Make two (2) as follows:

1. Obtain two pieces of lumber (1 x 4s) ¾-in. x 3½-in. x -in." long.
2. Drill a single hole ¾-in. in diameter in the center of each piece.
3. Sand each piece to remove rough edges.

SIDE VIEW



TOP VIEW



Directions for use: Place fixture over plastic container. Attempt to pass radish through hole. Any radish passing through hole is rejected as too small to peel and is cleaned whole for eating.

Cluster: Agribusiness and Natural Resources
Activity V: Beautify Your School

Note: *This activity is for students who raised flowers in Activity III.*

A. **Purpose of Activity:** This activity simulates the nature of work associated with the processing and marketing job family, and, particularly, those careers in landscaping.

B. **Basic Skills Applications:** In completing this activity, students will apply the following fundamental academic principles:

- Use the fundamental counting principle.
- Use the operations of addition and subtraction.
- Follow both spoken and written directions.
- Explain significance of placement.
- Exhibit productive work habits and attitudes.

C. **Approximate Time Required:** One class period.

D. **Materials Needed:**

Material	**Source**
Hand and gardening tools	Local discount store or school maintenance department
Water source	School

E. **Before You Start:**

1. Secure administrative approval to plant flowers on school campus.
2. Invite a professional landscaper, landscape architect, or nursery owner to speak to your class concerning his/her career.
3. Determine site to be landscaped.

F. **Step-by-Step Procedure:**

1. Allow the guest speaker to tell the class about the particulars of a career in the landscaping field.
2. Once the site for planting the flowers has been determined, prepare the soil.
3. Discuss the importance of placement of plants for ease in maintenance.
4. Have students determine the total number of flowers to plant. Then, let students plant flowers.
5. At a later time, let students determine how many flowers survived and how many did not.

6. Discuss why it's important for a landscaper to include plant replacement costs into the total cost of the job.

G. Follow-Up:

1. Discuss the advantages and disadvantages of the careers classified in the processing and marketing job family.
2. Have students determine their suitability/unsuitability for employment in this job family.
3. For an enrichment activity, secure (or have students secure) prices of the flowers which were planted. Sources include nurseries, discount stores, etc.

Cluster: Agribusiness and Natural Resources

Cross Reference: **Business and Office Cluster**

Activity VI: Microcomputer Applications in Agriculture

A. **Purpose of Activity:** This activity simulates the nature of work in farm business management occupations.

B. **Basic Skills Applications:** In completing this activity, students will apply the following fundamental academic principles:

- Identify computer terms.
- Identify the uses and limitations of a computer.
- Identify the computer's attributes (speed and accuracy) that make it an appropriate tool in a variety of applications.
- Load software from an external storage medium.
- Use software packages in a variety of situations.
- Practice data entry.

C. **Approximate Time Required:** One to two class periods.

D. **Materials Needed:**

Material	Source
Radio Shack Model III or IV, or Apple II compatible classroom) model microcomputers	School (computer literacy classroom)
Microcomputer Applications in Agriculture computer-aided instructional package	Educational Development & Training Center, East Texas State University E.T. Station Commerce, Texas 75429 (903) 886-5624 Cost: $35.00

E. **Before You Start:**

1. Locate microcomputers and/or secure approval to use them from the appropriate authority. Consider coordinating this activity with the computer literacy or office education teacher.
2. Secure instructional package.
3. Preview computer-aided instructional package prior to making assignment.

4. Determine units to be used from the following descriptions:

    UNIT I Orientation
    Introduction
    Program 1 - MAVCC Information

    UNIT II Operating Procedures for the Microcomputer
    Program 2 - Apple/TRS-809 System Commands
    Program 3 - Average Daily Gain
    Program 4 - Vehicle Cost Analysis
    Program 5 - Checkbook Balancer

    UNIT III Evaluating and Selecting the Microcomputer

    UNIT IV Microcomputer Applications in Farm Business Management
    Program 6 - Break-even Feeder Analysis
    Program 7 - ACRS (Accelerated Cost Recovery System)

    UNIT V Microcomputer Applications in Animal Science
    Program 8 - Lamb Yield Grade
    Program 9 - Dairy Cow Purchase Analysis

    UNIT VI Microcomputer Applications in Crop Science
    Program 10 - Crop Comparison
    Program 11 - Grain Bin Capacity Analysis

    UNIT VII Microcomputer Applications in Horticulture
    Program 12 - Plant Inventory

    UNIT VIII Microcomputer Applications in Agriculture Mechanics
    Program 13 - Calculating Board Feet
    Program 14 - Rafter Dimensions

    UNIT IX Microcomputer Applications in Agribusiness
    Program 15 - Computing Interest
    Program 16 - Take Home Pay

F. **Step-by-Step Procedure:**

1. Explain to students that because **agriculture** has now become **agribusiness**, many individuals employed in this occupational cluster/area use computers to assist them in record-keeping and financial calculation.
2. If possible, present information contained in a *Microcomputer Applications in Agriculture* unit orally; allow the students to solve the problem presented without the use of the computer. This will provide them with a better appreciation for the computer's attributes.
3. Provide students with the information necessary to complete a unit from the computer-aided instructional package.

G. Follow-Up:

1. Discuss the uses and limitations of the computer.
2. Have students discuss ways the computer can assist individuals employed in agricultural-related careers who are experiencing financial difficulty.
3. Have students describe the application of computers in a variety of occupations classified in the agribusiness and natural resources occupational cluster and in other cluster areas.
4. Have students evaluate their suitability/unsuitability for employment in farm business management occupations.

Cluster: Agribusiness and Natural Resources

Cross Reference: **Environment Cluster Hospitality and Recreation Cluster**

Activity VII: Preserving Wildlife

A. **Purpose of Activity:** This activity simulates the following types of work:

1. Research, support and regulations jobs in the Agribusiness and Natural Resources Cluster.
2. Environmental planning and resource control jobs in the Environment Cluster.
3. Natural resources and recreation jobs in the Hospitality and Recreation Cluster.

B. **Basic Skills Applications:** In completing this activity, students will apply the following fundamental academic principles:

- Identify and evaluate main ideas and related details.
- Interpret diagrams, graphs, and statistical illustrations.
- Use specialized and technical vocabulary related to specific content areas.
- Follow written directions including substeps.
- Solve mathematical problems by selecting and matching strategies to given situations.
- Utilize basic mathematical operations (addition, subtraction, multiplication, division).
- Describe ecological relationships in the environment.
- Compare organism adaptations to environmental changes.
- Evaluate the application and career implications of life science principles and research.

C. **Approximate Time Required:** Three class periods.

Note: *Three separate activities comprise this hands-on learning experience.*

D. **Materials Needed:**

Material	**Source**
Reading Assignment One and questions	Included
Activity Sheet One—Your First Day on the Job	Included
White-Tailed Deer Regulations	Included
Reading Assignment Two—White-Tailed Deer Management	Included
Activity Sheet Two—Texas' Big Game Investigations	Included

E. Before You Start:

1. These activities are applicable and relevant to language arts, mathematics, and/or science. Consider coordinating these activities with one or more of these teachers.
2. Reproduce sufficient copies of reading assignments and activity sheets.

   Note: *Reading assignments can be photocopied and laminated to ensure clarity.*

3. Consider inviting a fish and game warden (usually housed in the county courthouse) and/or a wildlife biologist to speak to your class.
4. Write the Texas Parks and Wildlife Department (4200 Smith School Road, Austin, Texas 78744) for literature which may be of interest to your students.

   Note: *Although you are able to use the sample white-tailed deer regulations, to add realism to this activity secure the most current year's regulations.*

5. Work through the activities yourself so that you can convey instructions in a clear and concise manner.

F. Step by-Step Procedure:

1. If a guest speaker has been secured, have him/her describe the nature of work associated with his/her career.
2. Allow students to read, aloud or silently, Reading Assignment One.
3. Discuss and emphasize why the three careers (game warden, wildlife specialist, and wildlife biologist) could be classified in the clusters discussed (Agribusiness and Natural Resources, Environment, and Hospitality and Recreation).
4. Discuss Reading Assignment One and stress the importance of maintaining a balance in nature.
5. Explain that because farmers are currently facing an economic crisis, they must develop other sources of income. Therefore, leasing land to sport hunters has become a profitable endeavor.
6. Allow students to use Reading Assignment One while completing the questions that go with it.
7. Have the class select the best title for Reading Assignment One. Write on the board reasons why the title was selected.
8. Allow students to do Activity Sheet One—Your First Day on the Job—individually. Monitor students and assist them as necessary.
9. Have individual students read aloud to the class Reading Assignment Two—White-Tailed Deer Management. Discuss Reading Assignment Two.
10. Have students complete Activity Sheet Two—Texas' Big Game Investigations. Point out that the data used in the problems were supplied by the Texas Parks and Wildlife Department. Each problem represents information which must be included in a report compiled at the end of each deer hunting season.

11. Monitor and assist students as needed.

    Note: *Some students will need your help in figuring out whether to add, subtract, multiply, or divide. You can help prevent misunderstanding and confusion by working example problems on the board.*

12. Provide the answers to the class and discuss how they were determined.

G. Follow-Up:

1. Discuss the advantages and disadvantages associated with the careers depicted.
2. For an enrichment activity, have students research the duties of the careers depicted and determine in which cluster the duties would be classified. For example, the fish and game warden's duty of issuing tickets to violators of fish and game regulations would fall under the support and regulations job family in the Agribusiness and Natural Resources Cluster. However, the duty of assisting the wildlife biologist in conducting a deer census would be classified in the environmental planning job family of the Environment Cluster.

H. Answers:

Reading Assignment One:

1. a. Fish and game warden
   b. Wildlife specialist
   c. Wildlife biologist
2. Yes
3. a. Agribusiness and Natural Resources
   b. Environment
   c. Hospitality and Recreation
4. Recreation
5. a. Food
   b. Clothing
6. Hobbies
7. Wildlife provides income to landowners.
8. The fish and game warden, the wildlife specialist, and the wildlife biologist share the responsibility of keeping wildlife populations safe by keeping their numbers stable. All three are concerned with protecting wildlife as a natural resource, and at the same time helping landowners earn income by letting people hunt and fish on their land.
9. Managing is important because wildlife is an economic asset. Also, without managing, certain animals or fish could become scarce or even extinct. This, in itself, would be a tragedy.
10. Evaluated to the satisfaction of the instructor.

Activity Sheet One—Your First Day on the Job

1. Evaluated to the satisfaction of the instructor.
2. Evaluated to the satisfaction of the instructor.
3. Evaluated to the satisfaction of the instructor.
4. Evaluated to the satisfaction of the instructor.
5. November 8 - January 4 (for 1986-87)
6. Yes. October 4 - November 7 (for 1986-87)
7. No
8. No

Activity Sheet Two— Texas' Big Game Investigations

1. 13,818
2. 14.9
3. 29.4
4. 153,798
5. 7.74
6. 2093

Many of the careers you have studied can be classified in more than one occupational cluster. Such is the case with the fish and game warden, wildlife specialist, and wildlife biologist. These careers can be classified in Agribusiness and Natural Resources because they involve regulations and research in this area. They can be in Environment because they include resource control and environmental planning. Another aspect of these careers is organizing and preserving natural sources of recreation. Therefore, they also can be classified in Hospitality and Recreation.

For many years, wildlife was a main source of food and clothing for people. Today, wildlife is an important source of recreation. How many people do you know who enjoy fishing and hunting as their hobbies? A great deal of money is spent and careers are created because of wildlife and the joy it brings.

In addition to providing pleasure, the direct economic benefit of wildlife has increased over the years. In many areas, the yearly income to landowners from letting people hunt wild game on their land compares favorably with other agricultural uses of the land.

The fish and game warden, wildlife specialist, and wildlife biologist have a common responsibility. They make sure the correct balance exists between wildlife being protected as a natural resource and landowners earning income from letting people hunt and fish on their land.

Wildlife can be just as important an economic asset as cattle, sheep, chickens, and other livestock. Therefore, it's just as important to apply management skills to wildlife as to these other sources of agricultural income. Without proper management, wildlife can become too abundant (due to overpopulation) or too scarce (due to too much hunting). Either way, wildlife as a natural resource would be threatened.

1. Name the three careers discussed in the reading assignment.

   a.

   b.

   c.

2. Can these careers be classified in more than one cluster?

3. Name the clusters in which these careers could be classified.

   a.

   b.

   c.

4. Wildlife today is an important source of:

5. In the past, wildlife was mainly used for:

   a.

   b.

6. Fishing and hunting are things people like to do for pleasure in their spare time. Therefore, fishing and hunting would be considered:

7. Describe why the economic value of wildlife has increased.

8. What is one responsibility common to the fish and game warden, wildlife specialist, and wildlife biologist?

9. Why is it important to manage wildlife?

10. You may have noticed that the reading assignment did not have a title. Read the assignment again, and give it a title which best describes what the article is about.

Your First Day On The Job

Directions: Congratulations! You have just been hired as the fish and game warden for your county. It's your first day on the job. A young woman from California has called, asking for information about white-tailed deer regulations. Use the White-Tailed Deer Regulations to assist you in answering her questions.

1. Do you have a general season in your county?

STOP

If you answered yes, answer only questions under Section A. If you answered no, answer only questions under SECTION B.

A. 2. What is the bag limit for your county?

3. How many bucks may be killed?

4. Are there regulations related to antlerless deer?

B. You've informed her that you do not have a general season in your county. However, she has several general questions related to white-tailed deer regulations in Texas. Use your guide to assist in answering her questions.

5. What are the dates for the general season in Texas?

6. Is there an archery season in Texas? If so, what are the dates?

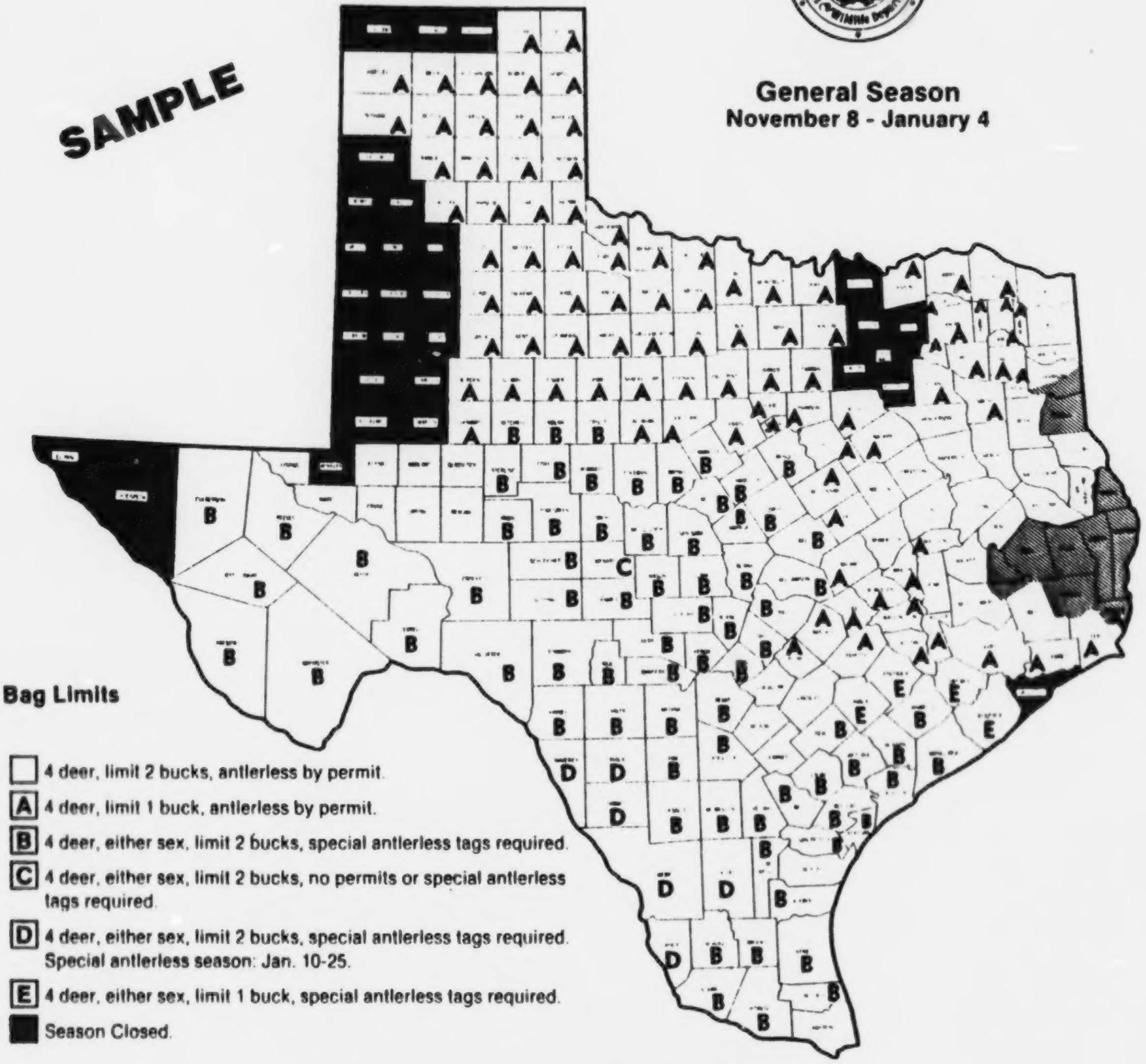
7. Do all counties have an archery season?

8. Do all counties permit deer hunting with dogs?

WHITE-TAILED DEER REGULATIONS
(General Season)
1986-1987

SAMPLE

General Season
November 8 - January 4



Bag Limits

☐ 4 deer, limit 2 bucks, antlerless by permit.

A 4 deer, limit 1 buck, antlerless by permit.

B 4 deer, either sex, limit 2 bucks, special antlerless tags required.

C 4 deer, either sex, limit 2 bucks, no permits or special antlerless tags required.

D 4 deer, either sex, limit 2 bucks, special antlerless tags required. Special antlerless season: Jan. 10-25.

E 4 deer, either sex, limit 1 buck, special antlerless tags required.

■ Season Closed.

Note 1: Archery season: Oct. 4 - Nov. 2 in all counties with a general season, and in Grayson, Hunt and Kaufman Counties.

Note 2: Special Antlerless only season: Oct. 18 - Nov. 2 in portions of Polk and Trinity Counties.

Note 3: In shaded counties (▨), deer hunting with dogs permitted Dec. 7 - Jan 4 only.

White-Tailed Deer Management

The white-tailed deer is the number one big game animal in Texas. In fact, Texas has more whitetails than any other state. We harvest more deer annually than most states have in their entire herds. This resource provides tremendous hunting recreation for Texans as well as over 16 million pounds of boneless venison each year.

The great bulk of these animals live on privately owned farms and ranches. Our state is composed of over 95 percent privately owned lands. The harvestable surpluses of deer and other game animals provide landowners with opportunities for increased agricultural income through hunting leases. Continued high-quality hunting recreation and increased ranch income are dependent on how well deer herds are managed.

Good deer management doesn't "just happen." It requires a basic understanding of how deer live and how they fit into the range management programs on ranches devoted to livestock-wildlife production. Their nutritional requirements must be understood and applied to the types of vegetation that exist on the range. For this reason, the number of deer present must be accurately estimated so that the populations can be balanced with food supply and with livestock which compete for the food supply.

Certainly, the ideal situation would be to have a complete count or census of all deer on a particular ranch or in a particular pasture. Unfortunately, complete counts of deer are nearly impossible to obtain, even where animals are confined under a high fence. Unlike domestic livestock, which can be rounded up and counted, deer do not confine their activities to large herd groups and cannot be rounded up successfully. For this reason, sample census methods must be used.

Wildlife biologists have had to rely on various sample census techniques to estimate wild populations. The basic principle involved is that if wildlife numbers can be estimated on a known area which is representative of a larger area, those estimates can be applied to the larger area. The key is to sample the study area as well as possible and make sure it is representative of the habitat type the estimates will be used on. For example, if a sample is taken only in heavy juniper stands, the population estimates could not be well used in an open oak savannah.

The Texas Parks and Wildlife Department is responsible, under the State's Uniform Wildlife Regulatory Act, for establishing harvest regulations for all wildlife resources. The Act stipulates that the Department shall conduct scientific studies of the supply, economic value, environments, breeding habits, sex ratios, effects of hunting, trapping, disease, predation, agricultural pressure, overpopulation, and any other factors or conditions causing increases or decreases in supply of wildlife resources. This act provides the legal basis whereby the Department establishes hunting seasons, bag limits, and means and methods of taking game by sport hunting. The Texas Parks and Wildlife Department currently has regulatory authority over the wildlife resources in all 254 counties.

Data concerning range carrying capacity, population trends, production, mortality, and harvest rates are utilized to make deer harvest recommendations which are presented at public hearings in all counties covered by the Uniform Wildlife Regulatory Act. These data are also used to determine antlerless deer harvest compartments and issuance rates.

Texas' Big Game Investigations

Directions: The following are examples of data a wildlife specialist and wildlife biologist would be responsible for gathering to assist the fish and game warden in enforcing regulations. Believe it or not, a great deal of math skill is needed in these careers to ensure that sound management plans are implemented and enforced.

1. In Cass county, the estimated deer population is 55,271. If 25% of the herd is bucks, how many bucks would there be in Cass county?
2. The number of acres per deer is calculated by dividing acres of deer range by the estimated deer population. Angelina county has 368,440 acres of deer range and an estimated deer population of 24,728. What is the number of acres per deer?
3. Brazos county has an estimated deer population of 26,044. You know that there are 7657 fawns. What is the percentage of fawns in the herd?
4. A total of 147,998 Texas white-tailed antlerless permits were scheduled to be issued in the Edwards Plateau ecological area. In addition 2,694 late permits and 3,106 supplemental permits were issued. What is the total number of all permits issued?
5. In 1990, there were 5,736 hunters and 44,382 hunter days in Montgomery county. What was the total hunter days per hunter?
6. In 1990, there were 1,293 antlered deer killed in Robertson county. In addition, there were 800 antlerless deer killed. What was the total number of deer killed?

Cluster: Business and Office
Activity I: The Real Estate Agent

A. **Purpose of Activity**: This activity simulates the nature of work associated with the real estate job family, specifically real estate agent and real estate broker careers.

B. **Basic Skills Applications:** In completing this activity, students will apply the following fundamental academic principles:

- Use figurative language.
- Incorporate structure into a piece of writing.
- Use proportion.
- Use contrast.
- Use repetition for emphasis.
- Use concrete imagery.
- Apply addition, subtraction, and multiplication.
- Determine proportion and percent.

C. **Approximate time required:** one to two class periods.

D. **Materials Needed:**

Material	Source
Ad preparation sheet	Included
Newspaper real estate ads	Local newspaper

E. **Before You Start:**

1. Consider coordinating this activity with the language arts and math teachers.
2. Obtain real estate ads from local newspaper.
3. Duplicate ad preparation sheet.
4. Invite a real estate agent or real estate broker to speak to your class concerning his/her career.

F. **Step-by-Step Procedure:**

1. Have students review the pertinent job-related information on this career.
2. Distribute copies of the newspaper real estate ads and the real estate ad preparation sheet to each student. Ask students to become familiar with them. Consider reading the ad preparation sheet for those students who are poor readrs or who are visually impaired.

3. Advise the class that they have the remainder of the period to prepare their own ads. Advise them that the houses they are to depict in their ads should be one of the following:
   a. Where they presently live.
   b. Where a relative, friend, or aquaintance lives.
4. Stress the importance of preparing an ad that will catch the reader's eye. Explain that the real estate agent's earnings are based upon a percentage of the property he/she sells (commissions).
5. Have students determine the cost of running their ads in a newspaper (refer to real estate ad preparation sheet).
6. Conclude the activity by having class members determine what their commissions would be if they sold the houses depicted in their ads.

   Example: *A six percent commission of the selling price of a $32,500 home would be calculated in this manner: .06 x $32,500.00 = $1,950.00*

G. Follow-Up

1. Allow students to read and display their ads to the class. Have the class vote to determine if the ad appeals to then enough to want to see the house. If the ad does not, have the class offer suggestions for improvement.
2. Discuss advantages and disadvantages of careers classified in the real estate job family.
3. Have students evaluate their suitability/unsuitability for employment in a career classified in the real estate job family.

Real Estate Ad Preparation

Instructions: Design/draft a real estate ad on the house where you or a relative, friend, or axquantance lives. In preparation for your ad, you will want to depict the home you are trying to sell in an appealing manner. Try to use as many of the factors listed below without making the ad too expensive:

Ad Cost: $2.04 a day for three lines or less. Additional lines are 68 cents each. It takes 5, five-letter words to make a line. Company titles or large block letters require two or more lines.

Opener: One or more words which catch the reader's eye and make him/her want to read further. Examples: Plenty of room, the home place.

Descriptive terms: Generally accepted abbreviations used to describe homes being advertised. Examples:

3 BRs = Three bedrooms
C/H&A = Central heating and air conditioning
WBFP = Wood buring fireplace
Brk = Brick exterior
Lge. rec. rm. = Large recreation room

Size and cost of home: The size and cost of a home are factors influencing its desirability. They may be indicative of the neighborhood's character (educational and income level of residents).

Community benefits:

"Near schools and churches"
"Close to shopping"
"Interstate nearby"
"Community club available"
"Low crime rate"

Directions to home:

"Out hwy 5, right Jones Rd., 3 mi. on right"
"1 block east of university"

Name and phone number of real estate agent:

Your name and phone number

Financing information:

"Bank financing available"
"Owner will carry note"
"VA no money down"

Cluster: Business and Office
Activity II: April 15 is an Important Date

A. **Purpose of Activity:** This activity simulates the nature of work associated with the accounting job family and, specifically, the accountant career.

B. **Basic Skills Applications:** In completing this activity, students will apply the following fundamental academic principles:

- Learn and use the language of business.
- Understand the importance of accurate records.
- Understand the purpose of, and procedures for recording transactions.
- Analyze source documents.
- Classify, organize, and record data.
- Calculate figures using basic mathematical principles.

C. **Approximate Time Required:** One to two class periods.

D. **Materials Needed:**

Material	Source
1040EZ Form and instructions	Included
W-2 statement	Included
Tax Table	Included
Calculators	Student supplied

E. **Before You Start:**

1. Invite an accountant to speak to your class concerning his/her occupation (refer to the Guide for Guest Speakers).
2. Reproduce necessary documents.
3. Consider coordinating this activity with the math or social studies teacher.

F. **Step-by-Step Procedure:**

1. Review pertinent job-related information about this job family, and/or allow the guest speaker to inform students of pertinent information about his/her career.
2. Inform the students that they will be completing a job task that the accountant performs: the preparation of tax forms.
3. Stress the importance of legible and accurate tax forms.
4. Give each student a 1040EZ form, the instructions for completing form 1040EZ, a tax table, and a W-2 form.

5. Inform students that a client (who is single) has requested that they complete the tax return for him. He did not have any interest income, nor did he contribute to any charities.

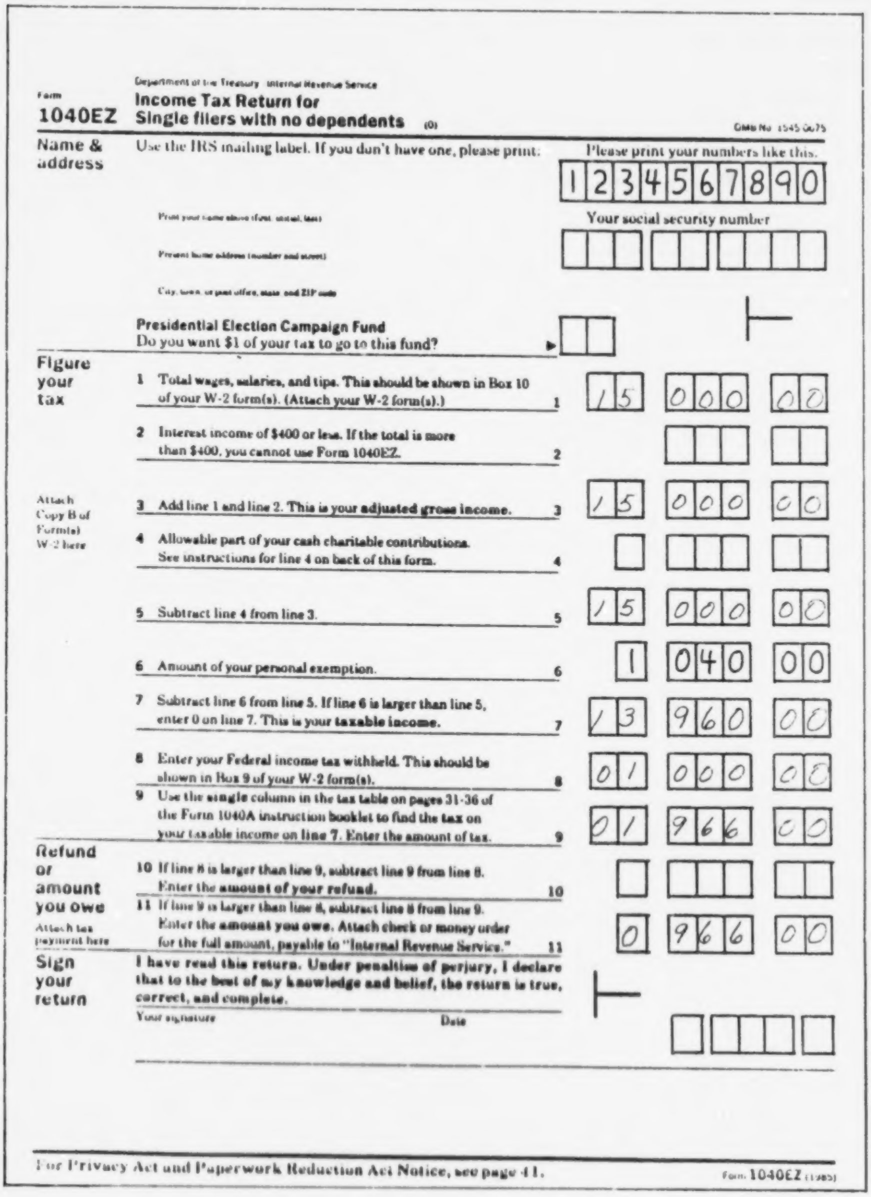
   > **Note:** *Some students, especially special needs students, will need constant monitoring and assistance. You may choose to tailor this activity by eliminating many of the substeps included on the Instructions for Form 1040EZ and/or by reading the instructions to these students.*

6. Have students prepare a statement which informs the client of the amount of money he must pay, or the amount to be refunded by the Internal Revenue Service.
7. Use the key in section H to check students' answers and assist them in correcting any errors made.

G. Follow-Up:

1. Discuss the purpose of the Federal Income Tax.
2. Discuss the advantages and disadvantages of careers classified in the accounting job family.
3. Discuss the personal qualifications needed by those who aspire to careers classified in this job family.
4. Have students evaluate their suitability/unsuitability for employment in a career classified in the accounting job family.

H. Answers to Activity Sheet:



Form **1040EZ**

Department of the Treasury · Internal Revenue Service

Income Tax Return for Single filers with no dependents (0)

OMB No. 1545-0675

Name & address

Use the IRS mailing label. If you don't have one, please print:

Please print your numbers like this. 1 2 3 4 5 6 7 8 9 0

Print your name above (first, initial, last)

Present home address (number and street)

City, town, or post office, state, and ZIP code

Your social security number ☐☐☐ ☐☐ ☐☐☐☐

Presidential Election Campaign Fund
Do you want $1 of your tax to go to this fund? ▶ ☐☐

Figure your tax	1 Total wages, salaries, and tips. This should be shown in Box 10 of your W-2 form(s). (Attach your W-2 form(s).)	1	15 000 00
	2 Interest income of $400 or less. If the total is more than $400, you cannot use Form 1040EZ.	2	
Attach Copy B of Form(s) W-2 here	3 Add line 1 and line 2. This is your **adjusted gross income.**	3	15 000 00
	4 Allowable part of your cash charitable contributions. See instructions for line 4 on back of this form.	4	
	5 Subtract line 4 from line 3.	5	15 000 00
	6 Amount of your personal exemption.	6	1 040 00
	7 Subtract line 6 from line 5. If line 6 is larger than line 5, enter 0 on line 7. This is your **taxable income.**	7	13 960 00
	8 Enter your Federal income tax withheld. This should be shown in Box 9 of your W-2 form(s).	8	01 000 00
	9 Use the **single** column in the tax table on pages 31-36 of the Form 1040A instruction booklet to find the **tax** on your taxable income on line 7. Enter the amount of tax.	9	01 966 00
Refund or amount you owe	10 If line 8 is larger than line 9, subtract line 9 from line 8. Enter the **amount of your refund.**	10	
Attach tax payment here	11 If line 9 is larger than line 8, subtract line 8 from line 9. Enter the **amount you owe.** Attach check or money order for the full amount, payable to "Internal Revenue Service."	11	0 966 00

Sign your return

I have read this return. Under penalties of perjury, I declare that to the best of my knowledge and belief, the return is true, correct, and complete.

Your signature Date

☐ ☐☐☐ ☐

For Privacy Act and Paperwork Reduction Act Notice, see page 41. Form 1040EZ (1985)

BEST COPY AVAILABLE

Instructions For Form 1040EZ

You can use this form if:

- Your filing status is single.
- You do not claim exemptions for being 65 or over, OR for being blind.
- You do not claim any dependents.
- Your taxable income is less than $50,000.
- You deduct only certain cash charitable contributions. See instructions for line 4, below.
- You had **only** wages, salaries, and tips, and your interest income was $400 or less. **Caution:** If you received tips (including allocated tips) that you did not report to your employer, you may not be able to use Form 1040EZ. See page 15 in the **Instructions for preparing 1040EZ and 1040A.**

If you can't use this form, you must use Form 1040A or Form 1040 instead. See pages 4 through 6 in the instruction booklet. If you are uncertain about your filing status, dependents, or exemptions, read the step-by-step instructions for Form 1040A that begin on page 7.

Completing your return

It will make it easier for us to process your return if you do the following:

1. Keep your numbers inside the boxes.
2. Do not use dollar signs.

You may find calculations easier if you round off cents to whole dollars. See page 13 of the instruction booklet for details.

Name and address

Use the mailing label we sent you. After you complete your return, carefully place the label in the name and address area. Mark through any errors on the label and print the correct information right on the label. If you don't have a label, print the information on the name and address lines.

Presidential election campaign fund

Congress set up this fund to help pay for Presidential election campaigns. You may have one of your tax dollars go to this fund by checking the "Yes" box. Checking the "Yes" box does not change the tax or refund shown on your return.

Figure your tax

Line 1. Enter on line 1 the total amount you received in wages, salaries, and tips. This should be shown in Box 10 of your 198_ wage statement(s), **Form W-2**. If you don't receive your W-2 form by February 15, contact your local IRS office. Attach the first copy or Copy B of your W-2 form(s) to your return.

Line 2. Enter on line 2 the total interest income you received from all sources, such as banks, savings and loans, and credit unions. You should receive a **Form 1099-INT** from each institution that paid you interest. You cannot use Form 1040EZ if your total interest income is over $400.

Line 4. You can deduct **one-half** of what you gave in cash (including checks and money orders) to qualified charitable organizations in 198_. But if you gave $3,000 or more to any one organization, or you made any noncash contributions, you cannot use Form 1040EZ. See page 20 of the instruction booklet for information on qualified charitable organizations and other limitations. Enter on line 4 **one-half** of your total cash contributions.

Line 6. Every taxpayer is entitled to one $1,040 personal exemption. If you are also entitled to additional exemptions for being 65 or over, for blindness, for your spouse, or for your dependent children or other dependents, you cannot use Form 1040EZ.

Line 8. Enter the amount of Federal income tax withheld. This should be shown in Box 9 of your W-2 form(s). If you had two or more employers and had total wages of over $39,600, see page 25 of the instruction booklet. If you want IRS to figure your tax for you, complete lines 1 through 8, sign, and date your return. If you want to figure your own tax, continue with these instructions.

Line 9. Use the amount on line 7 to find your tax in the tax table on pages 31-36 of the instruction booklet. Be sure to use the column in the tax table for **single** taxpayers. Enter the amount of tax on line 9. If your tax from the tax table is zero, enter 0.

Refund or amount you owe—Compare line 8 with line 9

Line 10. If line 8 is larger than line 9, you are entitled to a refund. Subtract line 9 from line 8, and enter the result on line 10.

Line 11. If line 9 is larger than line 8, you owe more tax. Subtract line 8 from line 9, and enter the result on line 11. Attach your check or money order for the full amount. Write your social security number and "198_Form 1040EZ" on your payment.

Sign your return

You must sign and date your return. If you pay someone to prepare your return, that person must also sign it below the space for your signature and supply the other information required by IRS. See page 28.

Mailing your return

File your return by **April 15, 198_**. Mail it to us in the addressed envelope that came with the instruction booklet. If you don't have an addressed envelope, see page 30 of the instruction booklet for the address.

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Tax Table

Tax Table—*Continued*

If 1040A, line 19, OR 1040EZ, line 7 is—		And you are—				If 1040A, line 19, OR 1040EZ, line 7 is—		And you are—				If 1040A, line 19, OR 1040EZ, line 7 is—		And you are—			
At least	But less than	Single (and 1040EZ filers)	Married filing jointly	Married filing separately	Head of a household	At least	But less than	Single (and 1040EZ filers)	Married filing jointly	Married filing separately	Head of a household	At least	But less than	Single (and 1040EZ filers)	Married filing jointly	Married filing separately	Head of a household
		Your tax is—						Your tax is—						Your tax is—			
14,000						17,000						20,000					
14,000	14,050	1,766	1,391	2,109	1,686	17,000	17,050	2,408	1,879	2,903	2,255	20,000	20,050	3,131	2,419	3,829	2,898
14,050	14,100	1,776	1,399	2,122	1,695	17,050	17,100	2,420	1,888	2,917	2,265	20,050	20,100	3,144	2,428	3,845	2,910
14,100	14,150	1,786	1,407	2,134	1,704	17,100	17,150	2,431	1,897	2,931	2,275	20,100	20,150	3,157	2,437	3,862	2,922
14,150	14,200	1,796	1,415	2,147	1,713	17,150	17,200	2,443	1,906	2,945	2,285	20,150	20,200	3,170	2,446	3,878	2,934
14,200	14,250	1,806	1,423	2,159	1,722	17,200	17,250	2,454	1,915	2,959	2,295	20,200	20,250	3,183	2,455	3,895	2,946
14,250	14,300	1,816	1,431	2,172	1,731	17,250	17,300	2,466	1,924	2,973	2,305	20,250	20,300	3,196	2,464	3,911	2,958
14,300	14,350	1,826	1,439	2,184	1,740	17,300	17,350	2,477	1,933	2,987	2,315	20,300	20,350	3,209	2,473	3,928	2,970
14,350	14,400	1,836	1,447	2,197	1,749	17,350	17,400	2,489	1,942	3,001	2,325	20,350	20,400	3,222	2,482	3,944	2,982
14,400	14,450	1,846	1,455	2,209	1,758	17,400	17,450	2,500	1,951	3,015	2,335	20,400	20,450	3,235	2,491	3,961	2,994
14,450	14,500	1,856	1,463	2,222	1,767	17,450	17,500	2,512	1,960	3,029	2,345	20,450	20,500	3,248	2,500	3,977	3,006
14,500	14,550	1,866	1,471	2,234	1,776	17,500	17,550	2,523	1,969	3,043	2,355	20,500	20,550	3,261	2,509	3,994	3,018
14,550	14,600	1,876	1,479	2,247	1,785	17,550	17,600	2,535	1,978	3,057	2,365	20,550	20,600	3,274	2,518	4,010	3,030
14,600	14,650	1,886	1,487	2,259	1,794	17,600	17,650	2,546	1,987	3,071	2,375	20,600	20,650	3,287	2,527	4,027	3,042
14,650	14,700	1,896	1,495	2,272	1,803	17,650	17,700	2,558	1,996	3,085	2,385	20,650	20,700	3,300	2,536	4,043	3,054
14,700	14,750	1,306	1,503	2,284	1,812	17,700	17,750	2,569	2,005	3,099	2,395	20,700	20,750	3,313	2,545	4,060	3,066
14,750	14,800	1,916	1,511	2,297	1,821	17,750	17,800	2,581	2,014	3,113	2,405	20,750	20,800	3,326	2,554	4,076	3,078
14,800	14,850	1,926	1,519	2,309	1,830	17,800	17,850	2,592	2,023	3,127	2,415	20,800	20,850	3,339	2,563	4,093	3,090
14,850	14,900	1,936	1,527	2,322	1,839	17,850	17,900	2,604	2,032	3,141	2,425	20,850	20,900	3,352	2,572	4,109	3,102
14,900	14,950	1,946	1,535	2,334	1,848	17,900	17,950	2,615	2,041	3,155	2,435	20,900	20,950	3,365	2,581	4,126	3,114
14,950	15,000	1,956	1,543	2,347	1,857	17,950	18,000	2,627	2,050	3,169	2,445	20,950	21,000	3,378	2,590	4,142	3,126
15,000						18,000						21,000					
15,000	15,050	1,966	1,551	2,359	1,866	18,000	18,050	2,638	2,059	3,183	2,455	21,000	21,050	3,391	2,599	4,159	3,138
15,050	15,100	1,976	1,559	2,372	1,875	18,050	18,100	2,650	2,068	3,197	2,465	21,050	21,100	3,404	2,610	4,175	3,150
15,100	15,150	1,986	1,567	2,384	1,884	18,100	18,150	2,661	2,077	3,211	2,475	21,100	21,150	3,417	2,621	4,192	3,162
15,150	15,200	1,996	1,575	2,397	1,893	18,150	18,200	2,673	2,086	3,225	2,485	21,150	21,200	3,430	2,632	4,208	3,174
15,200	15,250	2,006	1,583	2,409	1,902	18,200	18,250	2,684	2,095	3,239	2,495	21,200	21,250	3,443	2,643	4,225	3,186
15,250	15,300	2,016	1,591	2,422	1,911	18,250	18,300	2,696	2,104	3,253	2,505	21,250	21,300	3,456	2,654	4,241	3,198
15,300	15,350	2,026	1,599	2,434	1,920	18,300	18,350	2,707	2,113	3,268	2,515	21,300	21,350	3,469	2,665	4,258	3,210
15,350	15,400	2,036	1,607	2,447	1,929	18,350	18,400	2,719	2,122	3,284	2,525	21,350	21,400	3,482	2,676	4,274	3,222
15,400	15,450	2,046	1,615	2,459	1,938	18,400	18,450	2,730	2,131	3,301	2,535	21,400	21,450	3,495	2,687	4,291	3,234
15,450	15,500	2,056	1,623	2,472	1,947	18,450	18,500	2,742	2,140	3,317	2,545	21,450	21,500	3,508	2,698	4,307	3,246
15,500	15,550	2,066	1,631	2,484	1,956	18,500	18,550	2,753	2,149	3,334	2,555	21,500	21,550	3,521	2,709	4,324	3,258
15,550	15,600	2,076	1,639	2,497	1,965	18,550	18,600	2,765	2,158	3,350	2,565	21,550	21,600	3,534	2,720	4,340	3,270
15,600	15,650	2,086	1,647	2,511	1,975	18,600	18,650	2,776	2,167	3,367	2,575	21,600	21,650	3,547	2,731	4,357	3,282
15,650	15,700	2,098	1,655	2,525	1,985	18,650	18,700	2,788	2,176	3,383	2,585	21,650	21,700	3,560	2,742	4,373	3,294
15,700	15,750	2,109	1,663	2,539	1,995	18,700	18,750	2,799	2,185	3,400	2,595	21,700	21,750	3,573	2,753	4,390	3,306
15,750	15,800	2,121	1,671	2,553	2,005	18,750	18,800	2,811	2,194	3,416	2,605	21,750	21,800	3,586	2,764	4,406	3,318
15,800	15,850	2,132	1,679	2,567	2,015	18,800	18,850	2,822	2,203	3,433	2,615	21,800	21,850	3,599	2,775	4,423	3,330
15,850	15,900	2,144	1,687	2,581	2,025	18,850	18,900	2,834	2,212	3,449	2,625	21,850	21,900	3,612	2,786	4,439	3,342
15,900	15,950	2,155	1,695	2,595	2,035	18,900	18,950	2,845	2,221	3,466	2,635	21,900	21,950	3,623	2,797	4,456	3,354
15,950	16,000	2,167	1,703	2,609	2,045	18,950	19,000	2,858	2,230	3,482	2,646	21,950	22,000	3,638	2,808	4,472	3,366
16,000						19,000						22,000					
16,000	16,050	2,178	1,711	2,623	2,055	19,000	19,050	2,871	2,239	3,499	2,658	22,000	22,050	3,651	2,819	4,489	3,378
16,050	16,100	2,190	1,719	2,637	2,065	19,050	19,100	2,884	2,248	3,515	2,670	22,050	22,100	3,664	2,830	4,505	3,390
16,100	16,150	2,201	1,727	2,651	2,075	19,100	19,150	2,897	2,257	3,532	2,682	22,100	22,150	3,677	2,841	4,522	3,402
16,150	16,200	2,213	1,735	2,665	2,085	19,150	19,200	2,910	2,266	3,548	2,694	22,150	22,200	3,690	2,852	4,538	3,414
16,200	16,250	2,224	1,743	2,679	2,095	19,200	19,250	2,923	2,275	3,565	2,706	22,200	22,250	3,703	2,863	4,555	3,426
16,250	16,300	2,236	1,751	2,693	2,105	19,250	19,300	2,936	2,284	3,581	2,718	22,250	22,300	3,716	2,874	4,571	3,438
16,300	16,350	2,247	1,759	2,707	2,115	19,300	19,350	2,949	2,293	3,598	2,730	22,300	22,350	3,729	2,885	4,588	3,450
16,350	16,400	2,259	1,767	2,721	2,125	19,350	19,400	2,962	2,302	3,614	2,742	22,350	22,400	3,742	2,896	4,604	3,462
16,400	16,450	2,270	1,775	2,735	2,135	19,400	19,450	2,975	2,311	3,631	2,754	22,400	22,450	3,755	2,907	4,621	3,474
16,450	16,500	2,282	1,783	2,749	2,145	19,450	19,500	2,988	2,320	3,647	2,766	22,450	22,500	3,768	2,918	4,637	3,486
16,500	16,550	2,293	1,791	2,763	2,155	19,500	19,550	3,001	2,329	3,664	2,778	22,500	22,550	3,781	2,929	4,654	3,498
16,550	16,600	2,305	1,799	2,777	2,165	19,550	19,600	3,014	2,338	3,680	2,790	22,550	22,600	3,794	2,940	4,670	3,510
16,600	16,650	2,316	1,807	2,791	2,175	19,600	19,650	3,027	2,347	3,697	2,802	22,600	22,650	3,807	2,951	4,687	3,522
16,650	16,700	2,328	1,816	2,805	2,185	19,650	19,700	3,040	2,356	3,713	2,814	22,650	22,700	3,820	2,962	4,703	3,534
16,700	16,750	2,339	1,825	2,819	2,195	19,700	19,750	3,053	2,365	3,730	2,826	22,700	22,750	3,833	2,973	4,720	3,546
16,750	16,800	2,351	1,834	2,833	2,205	19,750	19,800	3,066	2,374	3,746	2,838	22,750	22,800	3,846	2,984	4,736	3,558
16,800	16,850	2,362	1,843	2,847	2,215	19,800	19,850	3,079	2,383	3,763	2,850	22,800	22,850	3,859	2,995	4,753	3,570
16,850	16,900	2,374	1,852	2,861	2,225	19,850	19,900	3,092	2,392	3,779	2,862	22,850	22,900	3,872	3,006	4,769	3,582
16,900	16,950	2,385	1,861	2,875	2,235	19,900	19,950	3,105	2,401	3,796	2,874	22,900	22,950	3,885	3,017	4,786	3,594
16,950	17,000	2,397	1,870	2,889	2,245	19,950	20,000	3,118	2,410	3,812	2,886	22,950	23,000	3,898	3,028	4,802	3,606

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Form 1040EZ

Form
1040EZ

Department of the Treasury · Internal Revenue Service

Income Tax Return for Single filers with no dependents (0)

OMB No 1545 0675

Name & address

Use the IRS mailing label. If you don't have one, please print:

Please print your numbers like this.

1 2 3 4 5 6 7 8 9 0

Print your name above (first, initial, last)

Your social security number

☐☐☐ ☐☐ ☐☐☐☐

Present home address (number and street)

City, town, or post office, state, and ZIP code

Presidential Election Campaign Fund
Do you want $1 of your tax to go to this fund? ▶ ☐☐

Figure your tax

1 Total wages, salaries, and tips. This should be shown in Box 10 of your W-2 form(s). (Attach your W-2 form(s).) 1

2 Interest income of $400 or less. If the total is more than $400, you cannot use Form 1040EZ. 2

ach
y B of
rm(s)
W-2 here

3 Add line 1 and line 2. This is your **adjusted gross income.** 3

4 Allowable part of your cash charitable contributions. See instructions for line 4 on back of this form. 4

5 Subtract line 4 from line 3. 5

6 Amount of your personal exemption. 6 1 040 00

7 Subtract line 6 from line 5. If line 6 is larger than line 5, enter 0 on line 7. This is your **taxable income.** 7

8 Enter your Federal income tax withheld. This should be shown in Box 9 of your W-2 form(s). 8

9 Use the **single** column in the tax table on pages 31-36 of the Form 1040A instruction booklet to find the **tax** on your taxable income on **line 7**. Enter the amount of tax. 9

Refund or amount you owe

Attach tax payment here

10 If line 8 is larger than line 9, subtract line 9 from line 8. Enter the **amount of your refund.** 10

11 If line 9 is larger than line 8, subtract line 8 from line 9. Enter the **amount you owe.** Attach check or money order for the full amount, payable to "Internal Revenue Service." 11

gn ur return

I have read this return. Under penalties of perjury, I declare that to the best of my knowledge and belief, the return is true, correct, and complete.

Your signature Date

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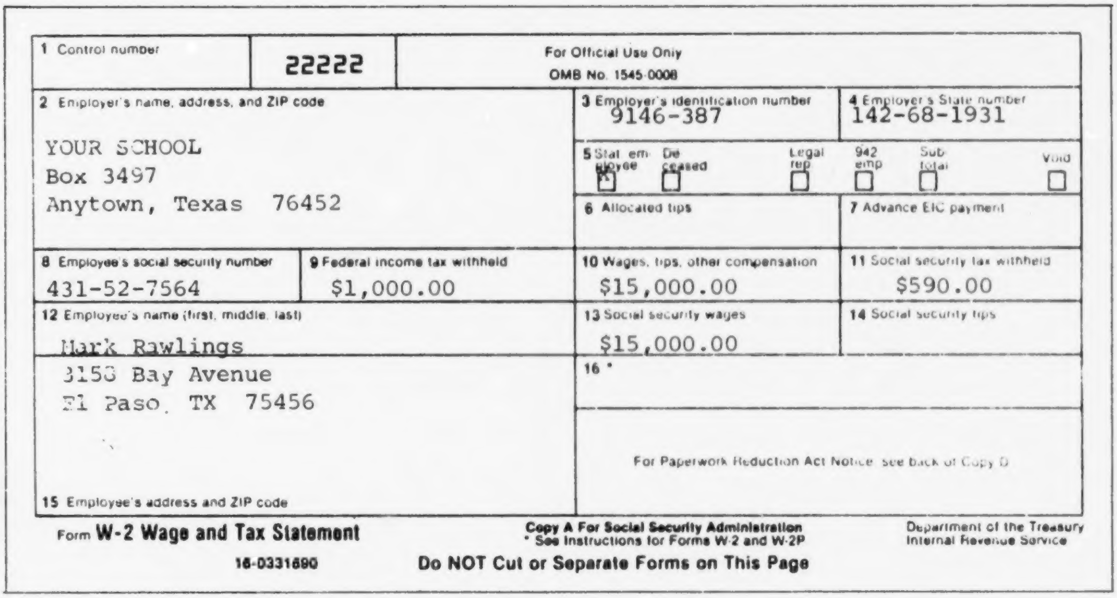
W-2 Form



1 Control number 22222

For Official Use Only
OMB No. 1545-0008

2 Employer's name, address, and ZIP code
YOUR SCHOOL
Box 3497
Anytown, Texas 76452

3 Employer's identification number 9146-387

4 Employer's State number 142-68-1931

5 Stat employee ☒ Deceased ☐ Legal rep ☐ 942 emp ☐ Sub-total ☐ Void ☐

6 Allocated tips

7 Advance EIC payment

8 Employee's social security number 431-52-7564

9 Federal income tax withheld $1,000.00

10 Wages, tips, other compensation $15,000.00

11 Social security tax withheld $590.00

12 Employee's name (first, middle, last) Mark Rawlings

13 Social security wages $15,000.00

14 Social security tips

16 *

3153 Bay Avenue
El Paso, TX 75456

15 Employee's address and ZIP code

For Paperwork Reduction Act Notice see back of Copy D

Form **W-2 Wage and Tax Statement**

Copy A For Social Security Administration
*** See Instructions for Forms W-2 and W-2P**

Department of the Treasury
Internal Revenue Service

16-0331690

Do NOT Cut or Separate Forms on This Page

Cluster: Business and Office
Activity III: Dictating and Transcribing a Memo

A. **Purpose of Activity:** This activity simulates the nature of work associated with the secretarial science job family.

B. **Basic Skills Applications:** In completing this activity, students will apply the following fundamental academic principles:

- Proofread for punctuation, capitalization, spelling, and syntax.
- Use all parts of speech correctly: nouns, pronouns, verbs, adjectives, adverbs, prepositions, conjunctions, and interjections.
- Arrange details in sequential order.
- Practice keyboarding skills.

C. **Approximate Time Required:** One class period.

D. **Materials Needed:**

Materials	Source
Practice memorandum, one per student	Included
Typewriter or microcomputer, one for each student	School business or typing office
Liquid Paper, one per center	School office or local school supply source
Typewriter correction paper, one package per class	Same
Typewriter eraser, one per center	Same
Typing paper	Same

E. **Before You Start:**

1. Reproduce a copy of the practice memorandum for each student.
2. Coordinate this activity with the business/typing teacher, school secretary, or computer literacy/data processing teacher. Have this resource person demonstrate how to remove errors on typed copy using Liquid Paper, correction paper, and/or a typewriter eraser, and how to operate equipment correctly.
3. Set up one or more activity centers with the materials listed in Section D.
4. Discuss the duties of the secretary.

F. **Step-by-Step Procedure:**

1. Inform the class they will participate in a proofreading/error-correcting activity similar to the sort a secretary might be expected to perform.
2. Distribute a copy of the practice memorandum to each student.

3. Divide students into groups of two and direct them to read and follow the instructions printed on the practice memo.
4. Instruct students to bring their finished memorandums to you, the administrative assistant, for appraisal.
5. If a memorandum passes your inspection, instruct the student to type it. He/she may use any of the three methods of error correction previously demonstrated.
6. Stress the importance of neatness, accuracy, and correct use of grammar and punctuation.
7. Encourage students to compare their typed copies with those of their classmates.

G. Follow-Up:

1. Consider having the class vote for the best memorandum. Award a prize to the winner.
2. Discuss the advantages and disadvantages of careers classified in the secretarial science job family.
3. Discuss the personal qualifications needed by those who aspire to careers classified in this job family.
4. Have students evaluate their suitability/unsuitability for employment in a career classified in the secretarial science job family.

Practice Memorandum

To: Director of Personnel

From: Vice President for Operations

Subject: Interview Results

Ms. Sharon Clements is the most qualified of the seven applicants sent to my office for personal review. Her knowledge of secretarial skills appears to be sound, and she seems interested in the job. I believe Ms. Clements will be an asset to our company.

Sincerely,

Instructions:

1. The student boss will read the above memo to the student secretary/stenographer. The boss may reread it as necessary.
2. The student secretary/stenographer will take notes while the student boss is reading. From the notes, the student secretary/stenographer will attempt to read back the memo exactly as it was dictated by the boss.
3. When the administrative assistant (teacher) has approved the memorandum, the secretary will type it.
4. Reverse roles so that you and your partner both have an opportunity to portray the secretary.

Cluster: Communications and Media
Activity I: Middle School News

A. **Purpose of Activity:** This activity simulates the nature of work associated with the journalism job family, specifically, the work of the reporter, editor, paste-up artist, and proofreader.

B. **Basic Skills Applications:** In completing this activity, students will apply the following fundamental academic principles:

- Distinguish fact from fiction.
- Identify types of audiences.
- Gather information through interviews and incorporate direct and indirect quotation.
- Work within time constraints and budget limitations.
- Write and edit copy.
- Write effective headlines and cutlines.

C. **Approximate Time Required:** Three to five class periods. (Some outside work needed)

D. **Materials Needed:**

Material	Source
Paper (enough for each student in your school to receive a copy of your completed newspaper)	Local school district supply source
Method of duplication (Spirit duplicator, printing press, photocopy machine)	Local school district supply source
Headliner machine or rub-off letters	High school journalism class or discount store
Career resources	Local classroom
C.I. Publisher's Prize	Included
Typewriters (optional)	School

E. **Before You Start:**

1. Secure administrative approval.
2. Consider coordinating this activity with the language arts teacher.
3. Secure items listed in Section D.
4. Determine the maximum size your paper can be (newspapers may be sold to individual students to defray the cost of publishing the paper).
5. Secure resources which provide information related to careers classified in the journalism job family.

6. Visit your local newspaper office. This will help students understand how a newspaper is published, the format used, and the careers involved.
7. Reproduce one copy of the C.I. Publisher's Prize.

F. Step-by-Step Procedure:

1. Review the process involved in publishing a newspaper.
2. Inform students that they will publish a newspaper containing news of "happenings" in their school. They will be performing the work tasks of various careers classified in the journalism job family.
3. Assign students careers. For example: news reporters, editorialists, sports writers, artists, typists, proofreaders, social reporters, editors, paste-up artists.

   Note: *If typewriters and typists are not available, newspaper articles can be written neatly by hand.*

4. Assign students deadlines for gathering news and preparing the final copy.
5. Ask for volunteers to assist you, the press operator, in duplicating copies of the final copy.
6. Distribute copies of the newspaper to students in the school.

   Note: *Miscellaneous ads/space may be sold to individual students to defray the cost of producing the paper. A good time to schedule this activity is near Valentine's Day.*

G. Follow-Up:

1. Discuss the advantages and disadvantages of careers in the journalism job family.
2. Have the class vote for the best news item submitted for publication. Award the submitter the "C.I. Publisher's Prize."
3. Have the students evaluate their suitability/unsuitability for employment in those careers classified in the journalism job family.

C.I. PUBLISHER'S PRIZE

The C.I. Publisher's Prize is hereby awarded to

____

for his/her exemplary display of journalism skills

Awarded this _______ day of _______________, _______.

______________________ *Teacher*

Cluster: Communications and Media
Activity II: We're on the Air!

A. **Purpose Of Activity:** This activity simulates the nature of work associated with the radio and television broadcasting job family.

B. **Basic Skills Applications:** In completing this activity, students will apply the following fundamental academic principles.

- Analyze nonprint coverage of news.
  a. Distinguish and compare capabilities of print and non-print media news coverage.
  b. Select coverage.
  c. Gather news.
  d. Determine and provide for audience needs and wishes.
- Recognize elements of verbal style, such as concreteness, clarity, appropriateness, and economy.
- Recognize and use diction, voice control, posture, gesture, eye contact, and confidence.

C. **Approximate Time Required:** Two to three class periods.

D. **Materials Needed:**

Material	Source
Current newspapers and magazines	Students and volunteers
Means of recording and broadcasting coverage (VCR equipment or cassette players)	Local district
Props to arrange classroom into broadcasting studio	Local district

E. **Before You Start:**

1. Consider coordinating this activity with the language arts, social studies, or speech teacher.
2. Have students watch or listen to the news.
3. Have them discuss the careers needed to produce various segments of the news. For example: community news (including activities of clubs and non-profit organizations), state news, national news, international news, weather, sports, commercials (needed to pay for air time for broadcast), feature stories, medical reports, consumer information.
4. Decide how you will broadcast your coverage. Secure items listed in Section D. Arrange classroom.
5. Consider inviting a person whose career is classified in the radio and television broadcasting job family to be a guest speaker.

F. Step-by-Step Procedure:

1. Introduce this activity by having students analyze different careers in the radio and television broadcasting job family and/or by allowing a guest speaker to convey pertinent job-related information.
2. Have students select the careers they will assume in this activity.

   Note: *Many teachers find this activity more successful if students are divided into news teams: the Channel 4 Team, the Channel 8 Team, or the CBS Team, the NBC Team, etc. Each team member then tries to perform his/her duties [local, national, international, sports, weather, etc.] in the way his/her real-life counterpart on TV does.*

3. Have students gather information (from newspapers, magazines, etc.) to read.
4. Students may use current commercials as a basis for their own.
5. Allow students to broadcast their news coverage via television (VCR) or radio (cassette recorder).

G. Follow-Up:

1. Discuss the advantages and disadvantages of careers classified in the radio and television broadcasting job family.
2. Play back the students' news coverage for faculty members, administrators, and parents — a great way to publicize your program!
3. Have students evaluate their suitability/unsuitability for employment in those careers classified in the radio and television broadcasting job family.

Cluster: Communications and Media
Activity III: Top Ten Countdown

A. **Purpose of Activity:** This activity simulates the nature of work associated with the recording industry job family.

B. **Basic Skills Applications:** In completing this activity, students will apply the following fundamental academic principles:

- Memorize music.
- Develop self- and group-discipline.
- Develop responsibility.
- Achieve expressive artistic interpretation of the composer's intent.
- Listen critically to live and recorded performances.
- Become aware of treatments of melody, harmony, rhythm, form, and performance media that result in the individuality and effect of music.

C. **Approximate Time Required:** Two to three class periods. (Some out-of-class work required.)

D. **Materials Needed:**

Material	Source
Cassette tapes (number of tapes needed will depend upon the number of groups)	Local school district supplied or discount store
Stereo	Local school district and/orstudents
Cassette players	Local school district and/or students

E. **Before You Start:**

1. Consider coordinating this activity with the choir teacher or band director.
2. Have students discuss the careers in this job family which would be necessary to produce a hit. Refer to page 188 of the *Career Opportunities Instructional Guide*.
3. If possible, arrange for a career study tour and/or guest speaker to further explain the recording process.
4. Secure items in Section D.

F. **Step-by-Step Procedure:**

1. Explain to students that they will be producing a tape in much the same way the recording industry does.
2. They may use existing music (with lyrics modified) or may create an original score. In addition, "rapping" will be allowed.

3. Divide the class into groups of five or six students. Some group members will be performers. Others will be composers, lyricists, arrangers, producers, etc.
4. Students should be given several parts of class periods to rehearse and prepare their "hits." In addition, students should be instructed to practice on their own.
5. Students should record their hits onto cassette tapes.
6. Allow class time to listen to, critique, and select the hits.
7. Have students vote for the top ten hits from all classes.
8. Have a "Top Ten Countdown."

G. Follow-Up:

1. Variations of this activity include: live performances, a talent show (Star Search), etc.
2. Discuss the advantages and disadvantages of careers classified in the recording industry job family.
3. Have students evaluate their suitability/unsuitability for employment in those careers classified in the recording industry job family.

Cluster: Communications and Media
Activity IV: Screen Test

A. **Purpose of Activity:** This activity simulates the nature of work associated with the motion pictures job family.

B. **Basic Skills Applications:** In completing this activity, students will apply the following fundamental academic principles:

- Utilize improvisation.
- Understand dramatic structure.
- Develop voice and diction.
- Analyze and interpret scripts.
- Develop stagecraft skills.
- Audition, rehearse, and perform before a live audience.
- Analyze and evaluate theatrical experiences.

C. **Approximate Time Required:** Two to three class periods.

D. **Materials Needed:**

Material	Source
Video-tape equipment (if available)	Local school
Screen test script, "Two Enterprising, Entertaining Entrepreneurs"	Included
Director's chair and sunglasses	Ask volunteer to bring
Record player and record	Local school
Rating scale (for performance)	Included
Make-up, wig, moustache (optional)	Ask student to bring
Posterboard for cue cards (optional)	School district supply source

E. **Before You Start:**

1. Schedule use of video cassette camera and recorder to film each screen test.
2. Prepare a stage, using necessary props. If a stage is not available, a section of the classroom may be used.
3. Check out record player and select appropriate music for the scene.
4. Reproduce rating scale (one for each student). Reproduce copies of the script.
5. If desired, develop cue cards.
6. Distribute the script one day in advance for students to review.

F. Step-by-Step Procedure:

1. Review the careers classified in the motion pictures job family (pages 184-187 of the *Career Opportunities Instructional Guide*.)
2. Divide the class into groups of six.
3. Explain that each group will make a screen test using the same script, "Two Enterprising, Entertaining Entrepreneurs." Class members will then rate each group on the rating sheet.

   Note: *Students may use scripts or cue cards during the screen test.*

4. Distribute and explain the rating sheet.
5. Get volunteers from the class to role-play the following jobs during each screen test (students may change jobs after each screen test if they wish):
   - (a) Director
   - (b) Make-up Artist
   - (c) Sound Mixer
   - (d) Camera Operator
   - (e) Recordist
   - (f) Set Director
   - (g) Special Effects Specialist
6. Discuss the general responsibilities of each career listed above.
7. During the screen test, the class watches silently. If video equipment is not available, have students fill out the rating form at the completion of each group's performance. If video equipment is used, after all groups have completed the screen test, play each test back and have students rate each group.
8. When finished, have the class discuss the ratings. Direct students to think about how they performed in each job and consider the qualities that made a good performance.
9. Allow students to select the best group performance and the most promising actor and actress.
10. Discuss the work which is conducted "behind the scenes." Emphasize the importance of these careers in developing a quality production.

G. Follow-Up:

1. Discuss the advantages and disadvantages of the careers classified in the motion pictures job family.
2. Discuss the difficulty many performers experience in finding and securing employment.
3. Have students evaluate their suitability/unsuitability for employment in the motion pictures job family.

RATING SCALE

Excellent= 3 **Good=** 2 **Satisfactory=** 1

CRITERIA						
Group#	Clearness	Timing	Emotion	Gestures/Action	Overall Total	Remarks/Particular Roles

Two Enterprising, Entertaining Entrepreneurs

Screen Test Script

Characters	**Students Playing Roles**
Narrator	______________________
Harry Honda	______________________
Karl Kawasaki	______________________
Susan Smarta	______________________
Dee Dearinga	______________________
Ms. Betty Bankston	______________________

Narrator: This play is about two teenagers, Harry Honda and Karl Kawasaki, who are opening their own motorcycle supply and repair shop. They soon discover that there is more to starting and owning a business than they ever imagined. With the help of Susan Smart, and Dee Dearing, and their career investigation teacher, Ms. Bankston, Harry and Karl learn an important lesson.

Harry: I wish we were ready to turn on the big sign in front of our store and welcome everyone to the Cycle Shop.

Karl: Me, too. I always dreamed about owning my own business. Just imagine, Harry, we are true entrepreneurs! You know, our shop is nothing fancy, Harry, but it is just the beginning. With all the people we know who own motorcycles—well, in no time we'll be raking in the dough. Why, in just a few months, we will probably need a larger building, more workers and...

Susan and Ms. Bankston enter.

Susan: Hey, wait a minute, Karl. Don't you think you'd better get this shop set up and opened before you close it down? Isn't that right Ms. Bankston?

Ms. Bankston: Yes, Susan. In fact, boys, I don't want to let the air out of your balloon, but do you realize that most small businesses fail within the first two years?

Harry: Gee, Ms. Bankston, do you mean we are going out of business before we even begin?

Ms. Bankston: Not necessarily, Harry. But, for example, what arrangements have you made for handling all that "dough" you'll be raking in?

Harry: (*snickering*) Well, Ms. Bankston, do you think we are a couple of dummies? We **do** have a cash register.

Ms. Bankston: That will do fine for daily transactions, but it won't do for all the money you will need to keep the business going.

Dee Dearing enters.

Dee: Why, Harry, I'll keep your money for **you**.

Karl: Dee, can't you think of anything besides **money** and **Harry?** Ms. Bankston, we'll buy a safe and keep our money there. It's that simple, and that way we will have it right here where we can keep an eye on it.

Harry: And where it will be nice and **safe**.

Ms. Bankston: Actually, Harry, it won't be all that safe right here under your noses. Wouldn't it be better to put your money in a bank? After all, banks do accept deposits.

Karl: Ms. Bankston, I'm really surprised at you! I thought you knew a lot about everything. Haven't you heard about all these banks that have gone out of business?

Ms. Bankston: Yes, Karl, I have. However, the Federal Deposit Insurance Corporation, or FDIC as it is often called, will insure your deposits for up to $40,000. I doubt very seriously you will have more money than that in the bank.

Harry: Well, to tell you the truth, Ms. Bankston, I think I would prefer using our own safe.

Karl: Me, too.

Ms. Bankston: If you really think about it, that's not such a good idea.

Karl: Sure it is! We could get a good, strong, lifetime guaranteed safe, and always have our money here when we need it without going through the hassle of a bank.

Dee: Karl, you know that if the money is right here in the store, **you** are going to spend it. Just like me—whenever I keep my money at home, I pick a dollar here and there and soon my savings disappear. In a bank, the cash is out of reach and is less likely to be a temptation.

Karl: That may be so, but somehow I feel better about having it close by where I can count it any time I want. I like to know where I stand.

Ms. Bankston: That's silly. A bank keeps a record of a customer's deposits—it is called an account. You will always know how much you have.

Susan: They will provide you with a written record...

Harry: I'm still not convinced of the value of banks.

Karl: Neither am I. For one thing, we are going to have a lot of bills to pay, especially here in the beginning when we are trying to get things started. Harry, hand me that bill from the parts supplier. It's in the cash register.

Harry: Here, Karl.

Dee: What does that prove, Karl?

Susan: That's what I'd like to know. You still have to pay it whether you have your money in the store, or in an account at the bank.

Karl: You **girls** just don't understand big business. If we deposit our money in the bank, I have to jump on my cycle, drive to the bank, and make a withdrawal every time we get a bill! On the other hand, if we keep the money here in our safe, we don't have to go anywhere. I just twirl the combination lock, take out the cash, and pay them right here on the spot.

Ms. Bankston: Huh! Apparently you **boys** don't understand big business. Banks offer checking account services.

Harry: You mean Karl or I can just call the bank on the telephone and they'll pay our bills for us?

Susan: No, of course not.

Ms. Bankston: Once you have a checking account, you can write an order, called a check, directing the bank to make payment for you.

Karl: Check! Now I understand.

Harry: Me, too. I thought the bank was just a place to store money—something the government operated.

Ms. Bankston: Oh no, Harry. A bank is a business just like your shop here.

Harry: You mean the bank sells parts for motorcycles, too! Wow!

Ms. Bankston: Not exactly. The bank makes profit for its owners by performing services for its customers and charging a small fee.

Susan: Like accepting deposits and loaning money.

Dee: And offering checking account services....

Harry: Okay, okay! You **girls** have proven your point. Banks are a good thing and can do a lot—but they can't move this display for us. Come on, Karl, help me move this display.

Ms. Bankston: Well, you boys need to go to **work**. And, I do mean work. There is much more to owning your own business than anyone realizes. I suggest you contact the Small Business Administration. They can provide you with a great deal of information about starting your own business and most of it is free of charge...

Dee: Come on, Susan. I told Sarah we would meet her at Neiman's at 2 p.m. We're only going to have five hours to shop!

Susan: (*as she rolls her eyes*) Ms. Bankston, why don't you join us? You've not seen anything quite so amusing as Dee and Sarah when they spend money.

Ms. Bankston: (*chuckling*) I wish I could, Susan. But, I've got to line up the guest speakers for the Career Day on Thursday.

Susan, Dee and Ms. Bankston exit the stage.

Narrator: We'd better leave Harry and Karl because they have work to do. But let's not forget that starting your own business takes a lot of preparation. However, there are services available to help people who are interested in owning their own business. Why, they will even help a couple of entrepreneurs like Harry and Karl.

WARNING!

Because of the possibility of injury associated with the following activities in the construction cluster, **you**, the instructor, and your students must know and demonstrate proper safety procedures. Read the first two sheets, Instructor Liability and Suggested Emergency Action for the Vocational Teacher, to prevent accidents caused by negligence and know proper procedures to follow in the event of an injury. The Safety Information Sheet should be read by students, and you should emphasize the importance of safety and proper safety procedures. In addition, when discussing careers classified in the construction cluster, emphasize that the nature of the work is, oftentimes, very dangerous.

Instructor Liability

An instructor has the legal responsibility for accidents which involve students who are participating in assigned activities. Instructors may be held liable for accidents that occur as a result of their negligence, and this liability may also extend to administrators. The prevention of, or protection from, liability may best be accomplished by following this check list.

1. Obtain **adequate** liability insurance which can be secured from professional organizations at a reasonable rate.
2. Provide adequate supervision and be in the classroom or laboratory at all times when class is in session. Never leave while any student is in the laboratory.
3. Act as a reasonable and prudent person would act under the same or similar circumstances.
4. Correct known dangerous and defective conditions, or report them to the proper authority, and clearly mark them out-of-order or dangerous.
5. Use good sense in the selection of student activities.
6. **Insist** that safety glasses be worn in all areas in which there is a remote chance of eye injury.
7. Provide proper instruction in the use of all tools, machines, and equipment.
8. Initiate a comprehensive safety program and rigidly enforce all rules and regulations.
9. Maintain the entire physical facility in safe working condition.
10. Provide proper protective equipment, and require students to wear it along with proper clothing while working in the laboratory.
11. Clearly label all toxic and flammable materials and provide proper storage for them.
12. Insist that industrial quality guards be provided and used whenever a machine is operated.
13. Set a proper example for students to follow.
14. **Know your students!**

Suggested Emergency Action For The Vocational Teacher*

Be prepared! Think through what you will do in the event of injury before the emergency occurs. Discuss emergency procedures with your vocational administrator and/or principal. Arrange communications, first aid, transportation, and other details **before** an accident occurs.

If a serious injury occurs, immediately take the following steps:

1. Have someone **notify** the principal and/or vocational administrator.
2. Do not leave your class **unattended**.
3. First aid, if needed, should be administered only by a qualified person.
4. Notify parents. They should contact the family doctor.
5. If unable to reach parents, contact family doctor.
6. If above fails, call local doctor or hospital.
7. Contact parents as soon as possible.
8. To stop or check severe bleeding, use an antiseptic compress. Do not use a tourniquet unless trained to do so.
9. Do not move the injured person if bone fracture is likely.
10. Keep the injured person warm.
11. File a complete accident report and submit a copy to the principal, department head and/or vocational administrator.

*This procedure should be approved by the local administration before utilization.

Safety Is A Must

I. Learning about safe working practices is important both in the classroom and on the job.
  A. In any classroom, especially in a laboratory where tools and equipment are used, the chances of an accident occurring are high if the proper safe working practices are not demonstrated by everyone at all times.
  B. Even though emphasis is placed on safety during the training program, once someone actually begins work, oftentimes the employer takes for granted employees' awareness of safety procedures. Learn now before it is too late!
  C. Students and employees have been injured, and some have lost their lives, simply because they did not follow the rules of safety
  D. Accidents can be prevented, both in the classroom and in the workplace.

II. A proper attitude toward safety is a must!
  A. Respect safety—do not take for granted that accidents will not happen to you. That is what others thought before they were seriously injured.
  B. At all times, be on guard for possible hazards.

III. Causes of accidents:
  A. Horseplay.
  B. Inadequate lighting.
  C. Undesirable location of equipment.
  D. Low ceilings.
  E. Unguarded belts, gears, pulleys, blades, cutters, etc.
  F. Failure to allow for adequate safety zones around equipment.
  G. Improper type and location of switches.
  H. Poorly located, constructed, and maintained storage.
  I. Waste materials, stock supplies, or liquids on the floor.
  J. Improperly maintained tools and equipment.
  K. Improper use of tools and equipment.
  L. Failure to use proper protective equipment. (Safety glasses are a must!)
  M. Inadequately ventilated work areas.
  N. Failure to adhere to personal grooming standards as related to the operation of equipment and/or the use of tools.

    Examples: *Loose clothing; dangling jewelry; long, loose hair.*

O. Use of alcohol or drugs by workers.

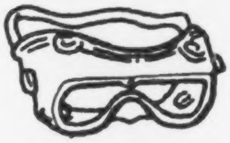
IV. General safety rules:

A. Secure approval from your instructor for all work that you plan to do.

B. If you are unsure about anything, ask for assistance from your instructor. Report any other students needing assistance to the instructor.

C. Report all injuries to your instructor, regardless of how slight they may be.

D. Wear proper eye protection as required by Texas law.



E. There should be absolutely no horseplay or running in the laboratory or class area.

F. Wear appropriate clothing. It should be loose fitting. Roll up sleeves. Remove all rings, watches, necklaces, and other jewelry.

G. Wear protective clothing when necessary and launder it periodically to keep clean.

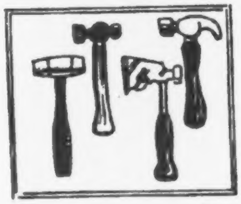
H. Keep hair away from moving parts. Extremely long hair is a safety hazard—it must be tied back.

I. Use traffic lanes, staying clear of safety zones unless you are the one operating equipment.

J. Be careful in handling and storing materials. Get help with long or heavy materials.

K. Keep your work station and equipment clean.

L. Return all tools to their proper places, and secure all equipment for the next operation.



M. Report to your instructor any equipment and tools that do not function properly or show need of maintenance.

faulty switch

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N. Be alert in making others aware of safety hazards and improper procedures.
O. Do not allow chips, scraps, and other litter to accumulate on the floor.
P. Wipe up spilled liquids immediately to help prevent falls.
Q. Keep cabinet doors and drawers closed.
R. Place oily rags and other combustible materials in covered fireproof metal containers.
S. Operate equipment and use tools only after you fully understand how to do so and have been given permission by your instructor.
T. Use tools and equipment only for the purpose for which they are intended.
U. Do not sit or lean on tables.
V. Learn procedures to follow in case of fire or accidents.
W. Do not work outside in adverse weather conditions. Beware of lightning.
X. Develop a receptive attitude toward safety.
Y. Follow all instructions and rules.

Cluster: Construction
Activity I: Hitting the Nail on the Head

A. **Purpose of Activity:** This activity simulates the nature of work associated with the wood construction job family.

B. **Basic Skills Applications:** In completing this activity, students will apply the following fundamental academic principles:

- Understand the principles of linear measurement.
- Apply basic mathematics to carpentry measurement processes.
- Take and follow both oral and written directions.
- Exhibit productive work habits and attitudes.

C. **Approximate Time Required:** Two to three class periods.

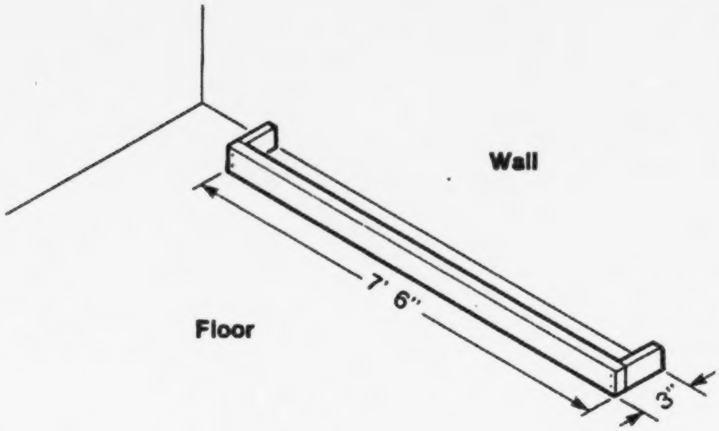
D. **Materials Needed:**

Material	Source
No. 2 construction cedar 2-in. x 4-in. x 8 ft (4 per class)	Local lumber company or vocational shop
No. 2 yellow pine 1 in. x 4 in. x 8 ft (4 per class)	Local lumber company or vocational shop
16 oz. claw hammer (2)	Same as above
12 oz. claw hammer (2)	Same as above
Crosscut saw, 8-10 teeth per inch (4)	Same as above
Folding 6-ft rule (2)	Same as above
Try and combination squares (2)	Same as above
8d common nails, 3 per student	Same as above
Measuring tape (2)	Same as above
Broom and dustpan	School janitor
Safety glasses (each student should wear a pair when hammering or sawing)	Vocational, agricultural, trades and industrial teachers
Safety Information Sheet	Included at beginning of Construction Cluster
Nail driving record	Included

E. **Before You Start:**

1. Invite a carpenter to your class to assist with this activity and to explain his/her career.
2. Obtain the materials required.
3. Consider coordinating this activity with the math teacher.

4. Construct and place the 2-in. x 4-in. cedar frames as shown below.



Note: *The number of frames will depend on class size and whether the activity is performed individually over a period of days or by the entire class on a single day.*

5. Demonstrate the correct and safe use of the hand tools.
6. Reproduce and post the attached nail driving record on the bulletin board.
7. Reproduce, distribute to students, and discuss the Safety Information Sheet.

F. Step-by-Step Procedure:

1. Explain that students will be using two hand tools carpenters use daily, the hammer and the saw. Further explain that the activity will be performed individually in two parts, with students working in pairs.
2. Divide the class into pairs of students. Explain that safety glasses must be worn while hammering or sawing.
3. Explain that in part one of this activity, each student will hammer three nails into the previously constructed 2-in. x 4-ft. frame, while his/her partner keeps a record of the number of hammer strokes required to drive the nail all the way in without denting the wood. Also, explain that the student will drive in the nails while in the kneeling position. The first nail must be within six inches of the end of the frame, the second nail about two feet from the first toward the center of the frame, and the third nail within six inches of the other end of the frame (see illustration above). Use the folding rule to measure nail positions.
4. Part one of the activity is completed when each student has driven in his/her nails and the number of hammer strokes has been recorded on the posted chart.
5. For part two of the activity, each student will use a combination square to lay out a 45° angle on the end of a 1-in. x 4-in. yellow pine board. Then each student will cut along the angled line with the hand saw. The process is repeated making a 90° angle

cut to resquare the end of the board. The two cuts should be made as close together as possible.

6. One member of the student team holds the board while the other makes the cuts. After each of the students makes his/her cuts, he/she has completed part two.
7. The activity is concluded by discussing the nail driving "contest" and identifying the most proficient "nail driver." Students should also be encouraged to compare the uniformity of their saw cuts.

G. Follow-Up:

1. Discuss the advantages and disadvantages of careers classified in the wood construction job family.
2. Discuss personal qualifications of workers classified in this job family.
3. Have students disassemble frames and clean area.
4. Have students determine their strengths/weaknesses in this activity.
5. Have students evaluate their suitability for employment in careers classified in the wood construction job family.

Nail Driving Record

Student's Name	Number of Hammer Strokes			
	Nail 1	Nail 2	Nail 3	Total

Cluster: Construction
Activity II: Forming a Pyramid

A. **Purpose of Activity:** This activity simulates the nature of work associated with the masonry construction job family.

B. **Basic Skills Applications:** In completing this activity, students will apply the following fundamental academic principles:

- Apply basic mathematics to carpentry measurement processes.
- Apply ratio and percent.
- Find and use perimeter, area, surface area, and volume.
- Follow both written and oral directions.

C. **Approximate Time Required:** Two to three class periods.

D. **Materials Needed:**

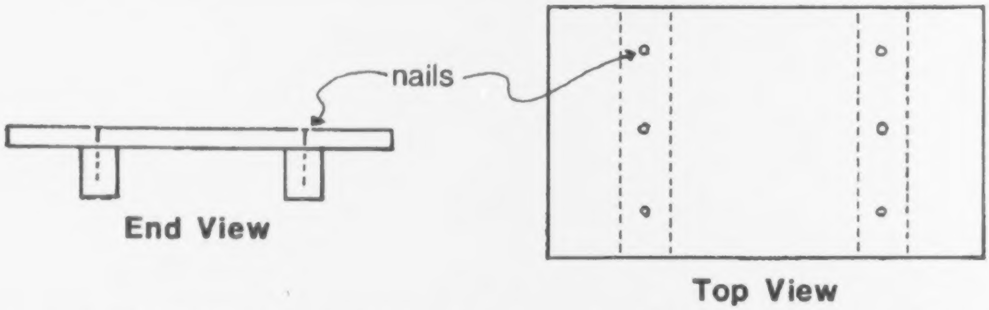
Material	Source
Wheelbarrow	Vocational shop or school maintenance department
Long handle shovel	Same
Masonry hoe	Same
String and chalk	Same
Two 1-gallon water buckets	Same
Four masonry trowels, 6 to 8 in. long	Same
Two jointers	Same
Two plumb rules	Lumber company or provided by local business
Modular brick, 20 per class	Same
Masonry sand, 100 lbs. per class	Same
Lime, 35 lbs. per class	Same
One 4-ft. x 8-ft. x ½-in. sheet of CD decking	Same
Two 2-in. x 4-in. x 8-ft studs	Same
24 8d common nails	Included
Masonry transparency master	Vocational shop or school maintenance department
Hammer	Same
Safety Information Sheet	Included at beginning of Construction Cluster and reproduced for students in Activity I

E. Before You Start:

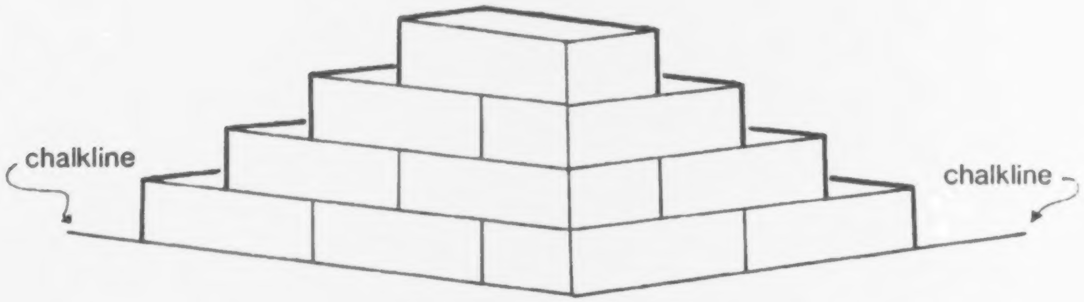
1. Secure administrative approval. Determine activity site.

   Note: *It is recommended that this activity be conducted outdoors.*

2. Develop the transparency.
3. Obtain all necessary tools and materials.
4. Review the Safety Information Sheet which is included at the beginning of the Construction Cluster. Point out items that are pertinent to this activity.
5. If possible, have a bricklayer assist with this activity while, at the same time, serving as a guest speaker.
6. Instruct students to wear or bring old clothing to class on the day of the activity.
7. Cut the sheet of decking into eight 2-ft x 2-ft squares. Cut the two studs into eight 2-ft lengths. Use nails, four of the 2-ft x 2-ft squares, and the eight 2-in. x 4-in. x 2-ft lengths to construct four mortar boards like the illustrations below:



8. Mix the sand and lime in the wheelbarrow thoroughly with the hoe. Ratio of lime to sand should be 1 to 3. Add enough water to turn the sand-lime mixture to a loose mud texture.
9. Reproduce the following illustration on the chalkboard to give an example for the students.



10. Become familiar with the attached masonry transparency.

> **Note:** *The purpose of this activity is not for students to build flawless pyramids, but to gain firsthand knowledge of the tools, materials, and skills used in bricklaying. Helping students learn from their mistakes will enhance this activity.*

F. Step-by-Step Procedure:

1. Divide the class into two equal groups. Have each group identify one of its members to be the job supervisor and two others to be the building inspectors. The remainder of the group will function as brick masons and helpers.
2. Discuss the masonry transparency.
3. Instruct each work group to set up its own work station outdoors, but adjacent to the classroom. Each work station should have the following:
   a. One 2-ft x 2-ft sheet of decking on which to build the corner.
   b. One 2-ft x 2-ft mortar board.
   c. Two masonry trowels.
   d. Ten modular bricks.
   e. One water bucket.
4. Instruct each group to lay out a chalk line guide for the corner.
5. Advise the work groups that they will compete with each other to construct a brick pyramidal corner in the shortest time possible. Point out the illustration on the chalkboard. Further advise that the corner should be horizontally and vertically straight and have uniform size mortar joints between the bricks. In order to keep corners accurate, advise the group that they may borrow from and return to you, as needed, the jointers and plumb rules.
6. Instruct each group to wet the surface of its mortar board with water and place two shovels of the lime-sand "mud" on the wet surface.
7. Following their supervisor's directions, each group completes its own brick pyramidal corner.
8. Activity is concluded by having the four building inspectors judge the best project, and having all members clean up tools and work area. Clean up is important. Oil tools to prevent rusting.

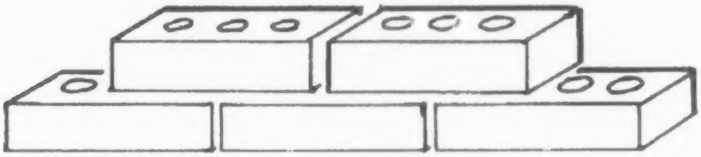
G. Follow-Up:

1. Discuss the careers classified in the masonry construction job family.
2. Discuss the advantages and disadvantages of the nature of work associated with this job family.
3. Discuss the effect weather has on performing work tasks in the masonry construction job family. Explain how weather affects the earnings of workers in this job family.
4. Have students evaluate their suitability for employment in a career classified in the masonry construction job family.

Masonry terms and definitions

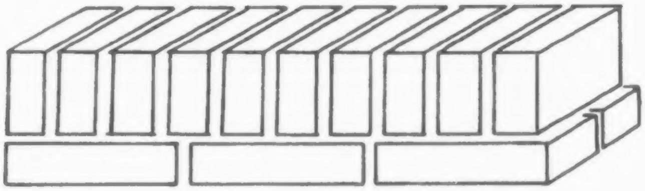
Mortar—a mixture of sand, lime, cement, water, and sometimes other aggregates.
Bearing wall—brick aggregate cemented together by mortar between each brick.
Coursed—laying brick to form bearing wall.
Stretcher course—brick is laid in the flat position so the brick is running along the course.
Wythe—a wall only one brick wide.

Example:



Header—brick is turned so the end is showing.

Example:



Procedure for laying bricks

Lay full mortar bed on footing between chalk lines.
Place mortar on ends of brick.
Place brick on footing.
Spread uniform bed of mortar over only a few bricks.
After placing, mortar squeezed out of joint is removed with trowel.
Tool with jointer.

Proper ratio for mortar

One part masonry cement (lime for activity purposes)
Three parts sand
Add water as directed by instructor

Cluster: Construction
Activity III: Tiling a Tray

A. **Purpose of Activity:** This activity simulates the nature of work associated with the finishing job family.

> **Note:** *Should materials and supplies be difficult to secure, a variation of this activity should be considered. Examples include: painting items donated by faculty and community, hanging wallpaper in an approved designated area in the classroom, etc.*

B. **Basic Skills Applications:** In completing this activity, students will apply the following fundamental academic principles:

- Understand the principle of linear measurement.
- Apply basic mathematics to carpentry measurement process.
- Take and follow both oral and written directions.
- Exhibit productive work habits and attitudes.

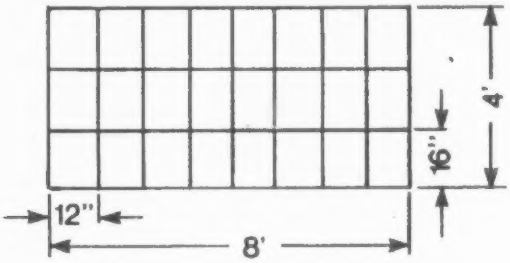
C. **Approximate Time Required:** Two to three class periods.

D. **Materials Needed:**

Material	Source
12-in. x 16-in. x ¼-in. A/D plywood sheet, one per student (cut from 4 ft x 8 ft sheets)	Local lumber yard
1-in. x 2-in. x 8-in. blind stop, two per student	Local lumber yard
12-in. x 12-in. x 1⁄16-in. vinyl floor tiles, smooth surface,	Local lumber yard
1½ pieces per student (a mixture of colors will do)	Local lumber yard
¾-in. wire brads, four per student	Local lumber yard
Water putty, 3 lbs. per class	Local lumber yard
"Weldwood Multi-Purpose Floor Cement" or other clean-up tile cement, 3 qts. per class	Local lumber yard
Putty knives, 6 per class	Local lumber yard
Abrasive paper, medium grade, 8 sheets per class	Local lumber yard
Claw hammers, 4 per class	Local lumber yard
Hand saw, crosscut, one per class	Local lumber yard
12-in. ruler, 2 per class	Vocational shop class
White glue, 1 pint per class	Local lumber yard
12-in. Kut-all tile cutter, 1 per class	Local lumber yard
Safety glasses (4 pair)	Local lumber yard
Safety Information Sheet	Included at beginning of Construction Cluster and reproduced for students in Activity I

E. **Before You Start:**

1. Invite a floor covering installer to your class to assist with this activity.
2. Pre-cut the 12-in. x 16-in. x 1⁄4-in. plywood panels from 4-ft x 8-ft sheets. The following cutting diagram provides for the best use of materials.



3. Mix water and putty in large can.
4. Obtain all tools and materials and arrange in work stations as follows:

   Distribution—Pre-cut plywood panels, abrasive paper

   Cutting—Saw, ruler, pencil, strips of blind stop

   Nailing—Hammer, 3⁄4-in. wire brads, white glue, safety glasses

   Filling—Pre-mixed water putty, 3 putty knives

   Preparation—Abrasive paper

   Tile Cutting—Tile cutter, 12-in. x 12-in. x 1⁄16-in. smooth surface vinyl tiles

   Attachment—Tile cement, 3 putty knives
5. Review the Safety Information Sheet included at the beginning of the Construction Cluster. Point out items that are pertinent to this activity

F. **Step-by-Step Procedure:**

1. Introduce the activity by briefly discussing the work role of floor covering installers. In particular, discuss the importance of quality work and paying attention to details in the finishing job family. Seams in the floor covering and joints in the window trim of the classroom may provide examples of good or poor quality work.
2. Demonstrate the work processes for making the serving tray as follows:

   Distribution—Select plywood panel and sand rough edges to exact size 12-in. x 16-in.

   Cutting—Measure and cut two 8-in. long strips of blind stop

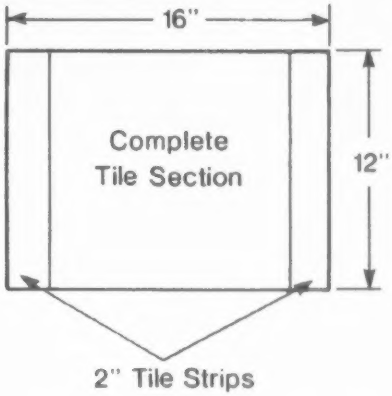
   Nailing—Place a small amount of glue on the wide side of the 8-in. strips of blind stop and attach them to the smoothest side of the plywood panel. Ends of the strips should be 2-in. in from and parallel with the long side of the panel, and 2-in. in from the short side of the panel. Turn the panel over the supporting strips and drive two nails through the plywood to attach the strips permanently. Wear safety glasses.

Filling—If the bad side of the plywood panel has holes or uneven spots, use the premixed wood filler and putty knife to level the rough surface.

Preparation—Use abrasive paper to sand off any excess filler. Remove any dust from the smoothed surface.

Tile Cutting—Use tile cutter to cut two strips of the vinyl tile exactly 2-in. x l-in.. Ensure that the side of the tile strip that is to be part of the tile joint is smooth, straight, and square. Take care to leave the cutting blade facing down when not in use.

Attachment—Cover the prepared side of the plywood panel with a thin layer of the floor covering cement. Press the tile strips and one complete section of tile on the cemented surface as illustrated below:



3. Allow students to select person(s) with whom they wish to work and let students start the production process.
4. As trays are completed, stack them to dry overnight prior to giving them to students to take home.
5. Complete the activity by cleaning all tools and materials.

G. Follow-Up:

1. Discuss the careers classified in the finishing job family.
2. Discuss the advantages and disadvantages of the nature of work associated with the finishing job family.
3. Have students evaluate their suitability for employment in a career classified in the finishing job family.

Cluster: Construction
Activity IV: Your Dream Home!

A. Purpose of Activity: This activity simulates the nature of work associated with the engineering and support services job family, specifically the work of the architect.

B. Basic Skills Applications: In completing this activity, students will apply the following fundamental academic principles:

- Understand the principles of linear measurement.
- Apply ratio and percent.
- Follow both oral and written directions.
- Exhibit productive work habits and attitudes.

C. Approximate Time Required: One to two class periods.

D. Materials Needed:

Material	Source
Blueprint of a house	Local architect
Graph paper or 11-in. x 14-in. drawing paper	School supply source
Pencils/pens	Student supplied
Floor plan	Included—or secure copies from local builders or newspaper

E. Before You Start:

1. Secure materials.
2. Reproduce copies of the floor plan.
3. Invite an architect to speak to your class concerning his/her career and to assist with this activity.

F. Step-by-Step Procedure:

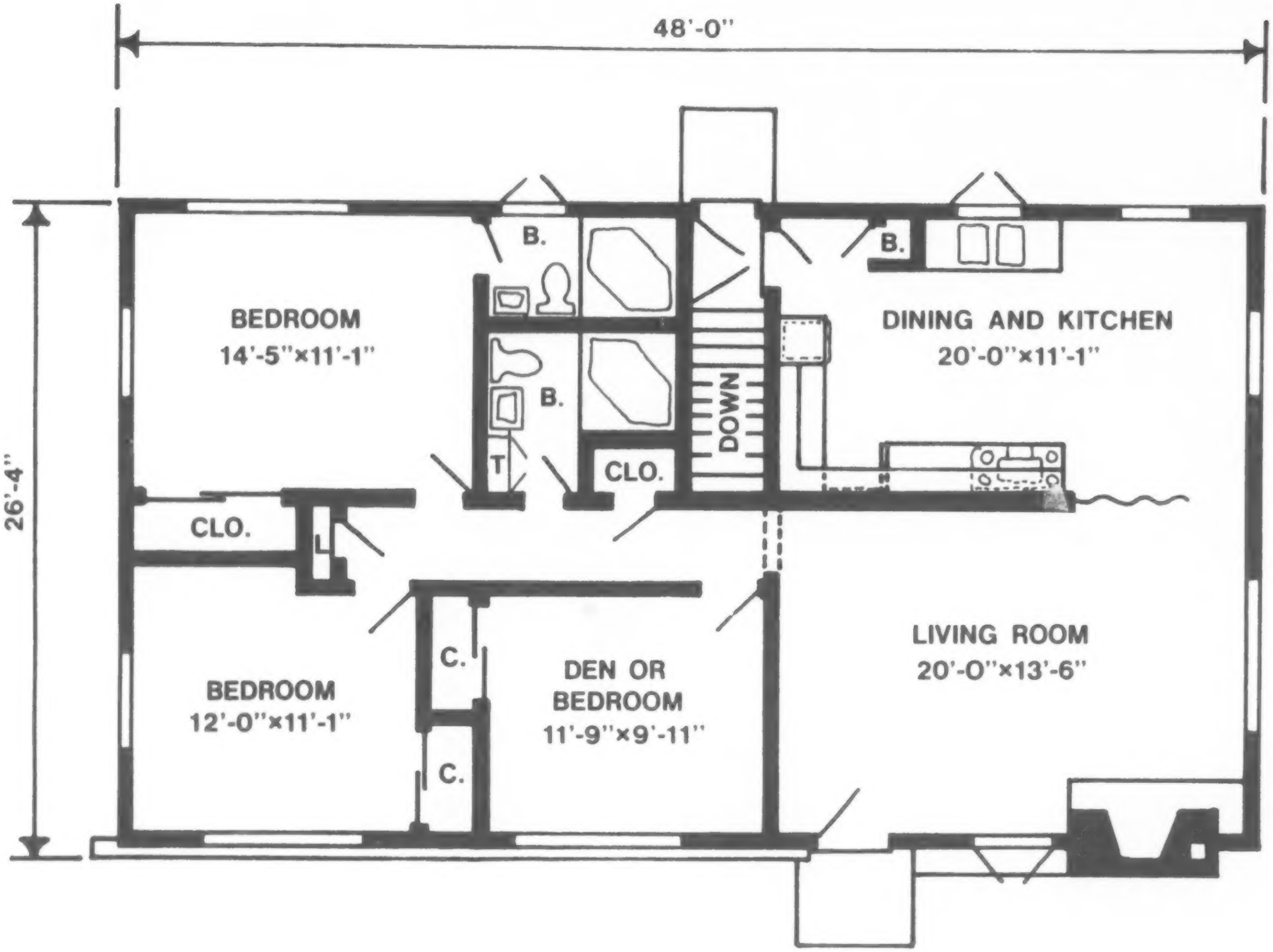
1. Discuss the architect's job duties.
2. Explain to students that they will be developing a blueprint or floor plan of their dream homes, in much the same way an architect does.
3. Explain that the first step to designing a structure is to decide what you want in it.
4. If possible, provide students with blueprints as examples.
5. Distribute copies of the floor plan example.
6. Point out how windows, doors, bathroom fixtures, and appliances are indicated.

7. Have the students indicate room size and total square footage on their completed drawings. Discuss the importance of rooms being in proportion to each other on the floor plan.
8. Although graph paper is preferred, drawings can be completed on 11-in. x 14-in. drawing paper.
9. Display completed drawings.

G. Follow-Up:

1. If using graph paper, students may determine a ratio for the square footage.
2. Visit a local house to compare it to a blueprint.
3. Discuss the advantages and disadvantages of careers classified in the engineering and support services job family.
4. Have students evaluate their suitability for employment as an architect.
5. Discuss other careers classified in the engineering and support services job family.

SAMPLE FLOOR PLAN


48'-0"
26'-4"
B.
BEDROOM
14'-5"×11'-1"
B.
T
CLO.
DOWN
DINING AND KITCHEN
20'-0"×11'-1"
B.
CLO.
C.
C.
BEDROOM
12'-0"×11'-1"
DEN OR
BEDROOM
11'-9"×9'-11"
LIVING ROOM
20'-0"×13'-6"

Cluster: Construction
Activity V: How Much Does It Cost to Build a House?

A. **Purpose of Activity:** This activity simulates typical job responsibilities associated with many careers in the construction cluster but, especially, with the contractor.

B. **Basic Skills Applications:** In completing this activity, students will apply the following fundamental academic principles:

- Utilize basic mathematics (addition, subtraction, multiplication, and division).
- Follow written directions including substeps.
- Identify implied main ideas and related details.
- Recognize vocabularies associated with a variety of content areas.
- Round whole numbers.
- Exhibit productive work habits and attitudes.

C. **Approximate Time Required:** One class period.

D. **Materials Needed:**

Material	Source
Reading assignment	Included
Activity sheet	Included
Calculators (if preferred)	Provided by student

E. **Before You Start:**

1. Consider coordinating this activity with the mathematics teacher.
2. Reproduce sufficient quantities of the reading assignment and activity sheet.
3. If possible, arrange to have a contractor speak to your class.
4. If possible, secure an authentic completed bid (or copy) from a contractor, savings and loan firm, or school business officials.

F. **Step-by-Step Procedure:**

1. Introduce activity by briefly discussing job tasks associated with the construction industry that require the use of math skills, such as measuring, designing, ordering supplies, etc.
2. Hand out the reading assignment and give students time to read it.
3. Reinforce the importance of completing an accurate estimate of total costs.

4. If examples of a bid have been secured, have students review the contents and, if a contractor is available to speak to your class, have him/her elaborate on the process used to prepare a bid.
5. Have students complete the activity sheet.

Note: *Provide assistance as needed.*

G. Follow-Up:

1. Check answers in class and assist students in determining how errors occurred.
2. Discuss the advantages and disadvantages of the nature of work associated with this cluster.
3. Discuss other math skills utilized by those workers whose careers are classified in the construction cluster.
4. Discuss other costs which would be figured into a completed bid—costs for fixtures, paint, flooring, etc.

H. Answers To Activity Sheet:

1. 132
2. $1795.20
3. 66
4. $831.60
5. 263
6. $418.17
7. $3,044.97

How Much Does It Cost to Build A House?

Estimating construction costs is an important duty of the contractor. Actually, it is a duty of all workers associated with the construction industry. But for the contractor, it is a primary responsibility. The contractor must accurately estimate the total cost for all materials, labor, and equipment needed to complete a construction project.

The contractor usually serves as the "go between" between the owner and the subcontractors. The owner is the person who wants a structure built or remodeled. The subcontractors are the carpenters, painters, electricians, etc. who do the desired building or remodeling. The contractor is the communication link between the owner and the subcontractors.

The owner usually knows how much can be spent on a project. However, in order to get the best possible price, many owners ask for an estimate of costs from several contractors. This process is often referred to as "bidding a job."

When bidding a job, a contractor must present the owner with an accurate estimate of costs for two reasons. First, if the contractor underbids (gives the owner an estimate that is too low), that contractor will lose money. Second, if the contractor overbids (gives an estimate that is too high), the owner will choose a different, less expensive contractor.

You might think that it would be easy for a contractor who has built and/or remodeled structures to estimate costs accurately. However, because building materials and labor costs change so rapidly, a contractor must be careful to figure estimates based on current prices of materials and current labor costs for sub-contractors. Although the contractor has other responsibilities, such as supplying, staffing, and scheduling the building or remodeling of a structure, perhaps the contractor's most important task is estimating the cost of projects.

How Much Does It Cost to Build A House?

Directions: In reading about estimating construction costs, you discovered how important this duty is for the contractor. In this activity, you will figure out how much lumber is needed to construct the floor and exterior walls of a wood frame house, and how much the lumber will cost. A contractor, of course, is responsible for figuring much more than lumber. Completing this activity will give you an idea as to whether you have what it takes to be a successful contractor. Use the following information to complete the problems.

The owner tells you:

The house to be built is 35 ft x 60 ft.

The lumber company tells you:

One piece of 2-in. x 10-in. x 16-ft yellow pine costs $13.60.
One piece of 5/8-in. x 4-ft x 8-ft plywood is $12.60.
One 2-in. x 4-in. x 8-ft yellow pine stud costs $1.59.

1. The floor of a house contains a series of joists (2-in. x 10-in. planks set on edge) set 16-in. on center with a header (a 2-in. x 10-in. plank) set at right angles to the joists. To determine the amount of lumber needed for floor joists, some contractors figure one floor joist for every foot of wall upon which a joist rests.

   Example: *A house that is 25 ft x 50 ft would need 1250 feet of joists (25 ft x 50 ft = 1250 ft). If a contractor is ordering 2-in. x 10-in. x 16 ft pieces, then 16 ft must be divided into 1250 ft to determine the total number of 2-in. x 10-in. x 16 ft pieces needed to construct the floor. 1250/16 = 78.125 (rounded to the next highest number = 79).*

   Using the house dimensions provided for you by the owner, determine the total number of pieces (2-in. x 10-in. x 16-ft) needed to construct the floor.

   ______________pieces

2. Using the cost provided to you by the lumber company of a 2-in. x 10-in. x 16-ft piece of yellow pine, figure the cost of the floor.

   ____

3. To determine the cost of the subfloor, a contractor figures the total number of square feet the floor will cover and divides that number by 32 (which is the number of square feet in a 4-ft x 8-ft sheet of plywood).

   Example: *For a house that is 25 ft x 50 ft, the total square footage is 1250 sq. feet (25 ft x 50 ft = 1250 sq ft). Dividing 1250 by 32 equals 40 pieces of plywood.*

Using the dimensions of the house provided for you by the owner, determine the total number of pieces of 5⁄8-in. x 4 ft x 8 ft plywood needed for the subfloor.

______________pieces

4. Given the price of a piece of plywood (5⁄8 in. x 4 ft x 8 ft) provided for you by the lumber company, figure the cost for the total number of pieces of plywood needed to construct the subfloor.

____

5. The method used to figure the number of studs needed to construct the exterior walls of a wood frame structure is the same method used to figure the number of joists (refer to problem 1).

Using the house dimensions provided by the owner, determine the number of 2-in. x 4-in. x 8 ft studs needed for the exterior walls of this house.

______________studs

6. Use the price provided for you by the lumber company of a 2-in. x 4-in. x 8 ft yellow pine stud to determine the total cost of the studs.

____

7. Add the costs of the lumber (determined in the previous questions) to determine the total cost of the materials needed to construct the floor and exterior walls of the wood frame house.

____

Cluster: Consumer and Homemaking
Activity I: C.I. Cookbook

A. **Purpose of Activity:** This activity simulates the nature of work associated with the food job family.

B. **Basic Skills Applications:** In completing this activity, students will apply the following fundamental academic principles:

- Evaluate effective nutrition practices.
- Write for a specific audience and purpose.
- Use formal and informal language appropriately.
- Edit for clarity of language.
- Arrange a list of events in sequential order.
- Follow written directions involving subordinate steps.

C. **Approximate Time Required:** Two or three class periods.

D. **Materials Needed:**

Material	**Source**
Recipes	Newspapers, magazines, cookbooks, Parents, relatives
Paper	Local school supply source
Method of duplication (Photocopy machine, Spirit duplicator, etc.)	Local school supply source

E. **Before You Start:**

1. Secure items 2 and 3.
2. Inform students to bring favorite recipes to class.
3. Discuss effective nutrition practices.
4. If possible, invite a dietician to your class.
5. Secure administrative approval prior to students' selling cookbooks.

F. **Step-by-Step Procedure:**

1. Have students bring their favorite recipes to class.
2. Have them classify recipes in the following categories: (1) Appetizers (2) Soups and Salads, (3) Main Dishes (4) Meats, Poultry, and Seafood (5) Vegetables (6) Breads, Rolls, Pies, and Pastry (7) Cakes, Cookies, Frostings, and Confections.
3. Discuss the nutritional value of each recipe.

4. Copy the recipes, arranged by category, on sheets of paper. If possible, have them typed.
5. Duplicate the cookbooks and sell them as a money-making project to defray the cost of the activities conducted during the course of study.

   Cross Reference: *Marketing and Distribution Cluster*

6. Have students who are willing create sample dishes from the recipes submitted.
7. Have students serve as food testers.
8. Conclude the activity by stating to students that they have performed the work tasks of the following careers: food chemist, food tester, research dietician, and food journalist.

G. Follow Up:

1. Using the recipes submitted, have students plan three meals a day for two consecutive days.
2. Have them develop a shopping list for every item needed to prepare the meals. Have them find out the cost of at least six of the items.
3. Discuss the advantages and disadvantages of careers classified in the food job family.
4. Have students evaluate their suitability for employment in those careers classified in the food job family.

Cluster: Consumer and Homemaking
Activity II: The Interior Decorator

A. **Purpose of Activity:** This activity simulates the nature of work associated with the housing and household equipment job family.

B. **Basic Skills Applications:** In completing this activity, students will apply the following fundamental academic principles:

- Express harmony and individuality through effective use of the principles and elements of design.
- Estimate solutions.
- Write and solve equations.
- Conduct cost comparisons.

C. **Approximate Time Required:** Two to three class periods—some outside classwork required.

D. **Materials Needed:**

Material	Source
Department store catalogs, home furnishings magazines, furniture store ads, etc.	Students
Poster board	Provided by student or local school supply source
Glue	Provided by student or local school supply source

E. **Before You Start:**

1. Secure all items mentioned in Section D.
2. Discuss the careers classified in the housing and household equipment job family.
3. If possible, invite an interior decorator to speak to your class and/or allow students to participate in a career study tour of the interior decorator's working environment.

F. **Step-by-Step Procedure:**

1. Inform students that they will be performing simulated work tasks of the interior decorator, a career classified in the housing and household equipment job family.
2. Have students develop an interior decoration for their own bedrooms, using information gained from the resources in Section D.
3. Students are to select the furniture, color scheme (rugs/tile, curtains, wallpapering, fixtures), and accessories (lamps, pictures, telephones, etc.)

4. Students should prepare a display of their choices in the following manner:
    a. Using the poster board, students should identify the three areas: furniture, color scheme, and accessories.
    b. Pictures and/or samples should be placed neatly under the appropriate areas.

       Note: *Some lumber companies and other businesses will give samples of their floor coverings, paint chips, and wallpaper.*
5. Have students prepare a **cost estimate** of their work.

G. Follow-Up:

1. Discuss the advantages and disadvantages of the careers classified in the housing and household equipment job family.
2. Have the students select the interior design/cost estimate which strikes the best balance between creative, attractive design and low cost. Explain that interior decorators must present their best work to the client, yet keep the cost within the limits prescribed.
3. Discuss the personal qualifications needed by those who aspire to careers classified in the housing and household equipment job family.
4. Have students evaluate their suitability for employment as an interior decorator.
5. Discuss other careers classified in the housing and household equipment job family.

Cluster: Consumer and Homemaking

Cross Reference: **Part 1 of this activity can be cross-referenced to the Fine Arts and Humanities Cluster.**

Activity III: Designing a Puzzle

A. **Purpose of Activity:** This activity simulates the nature of work associated with the family relations and child development job family.

B. **Basic Skills Applications:** In completing this activity, students will apply the following fundamental academic principles:

- Understand principles of child development.
- Design, develop, and create original artworks.
- Follow oral and written directions involving subordinate steps.
- Use various sources as aids in locating specific information.

C. **Approximate Time Required:** Part 1—one class period
Part 2—one class period

D. **Materials Needed:**

Material	Source
Boxes of crayons, 24 colors 1 box for each two students	Local school district supply source or students
White glue, 1 quart per class	Same
Heavy duty scissors, 6 to 8 per class	Same
Coloring books	Local discount store or students
Pieces of cardboard or posterboard, 8½-in. x 11-in.	Provided by students
Wooden rolling pin	School's home economics department
Wax paper	School cafeteria

E. **Before You Start:**

1. Obtain all the materials listed in Section D. An excellent coloring book suitable for this activity is **I Want to Be** by Rand McNally Publishing Co. This book depicts various workers performing their roles. The pictures are large, a quality essential to construction of an easy puzzle.
2. Arrange for the trip to kindergarten classes.
3. Discuss the careers classified in the family relations and child development job family.

F. Step-by-Step Procedure:

Part 1

1. Allow students to select and color a page from the coloring book. Or, allow students to design their own picture. The finished colored picture should be as large as possible with a minimum of small details. Coloring should extend across the page where possible. The large image and broad expanse of colors will help the younger child recognize the pattern even when the puzzle parts are separated.
2. Using a minimum of glue, attach the colored picture to heavy posterboard or cardboard. Use the rolling pin to smooth the surface and remove excess glue from between the colored picture and the poster/cardboard. Be sure to wash the rolling pin thoroughly before returning it.
3. Allow the puzzle to dry for five to ten minutes. During this waiting time, discuss the unique needs of small children—what appeals to them, their limited motor skills, etc., and how as a child develops, his/her interests change and motor skills improve.
4. Let each student lay his/her puzzle face down and in pencil draw on the back the cutting pattern to be followed. For serviceability and ease of assembly by small children, avoid small circles or curves of less than one inch in diameter in the cutting pattern. Narrow extensions in the pattern should also be avoided where possible.
5. Cut out the puzzle according to the pattern.
6. Reassemble on a flat surface, weight down with a book or similar object, and allow to dry completely. Space can be saved by stacking the puzzles with a sheet of wax paper between each one.

Part 2

1. Allow the students to visit a kindergarten class and assist the young children in completing the puzzles.
2. Donate the puzzles to the kindergarten class.
3. Conclude this activity by having students evaluate whether they would enjoy working with small children on a daily basis.

G. Follow-Up:

1. Discuss the advantages and disadvantages of the work associated with the family relations and child development job family.
2. Discuss the personal qualifications needed by those who want to work in this job family.
3. Have students evaluate their suitability for employment in careers classified in the family relations and child development job family.

Cluster: Environment
Activity I: Noise Pollution Investigation

A. **Purpose of Activity:** This activity simulates the nature of work associated with the pollution prevention and control job family.

B. **Basic Skills Applications**: In completing this activity, students will apply the following fundamental academic principles:

- Plot and interpret a graph.
- Conduct an experimental design.
- Compare environmental applications under varying conditions.
- Examine environmental science principles.

C. **Approximate Time Required**: One Class Period.

D. **Materials Needed:**

Material	**Source**
Cassette recorder with built-in mike and audio-level meter (battery powered)	School library
Cassette tape (20-minute duration)	School library or discount store
Sound level investigation graph	Included (reproduce locally)
Noise pollution information sheet	Included (reproduce locally)

E. **Before You Start:**

1. Coordinate out-of-class activities in advance with school authorities. Schedule the noise pollution investigations in advance with the staff members who are in charge of the areas that will be monitored.
2. Lead a discussion of the job characteristics of the pollution prevention and control job family, pointing out the investigative aspects of pollution control. Point out also the relative newness of this occupational field.
3. Refer to the noise pollution information sheet when explaining the serious personal injury which can result from noise pollution in manufacturing areas or airports. Inform students that the federal government establishes safety requirements with respect to noise pollution.
4. Reproduce copies of the sound level investigation graph for investigation groups to complete.
5. Designate noise pollution investigation groups. Stress the importance of non-interference with other classes during the activity.
6. Instruct students how to operate tape recorder.

7. Plan related classroom activity to engage student groups not involved in actual performance of this activity. (This action required only if tape recorders are not available for all groups.)

F. Step-by-Step Procedure:

1. When directed by the teacher, the noise pollution investigation group will check out the tape recorder, test it for satisfactory operation, rewind the cassette, and set the tone and volume controls at the midpoint. These controls are not changed during the activity.
2. The investigation group will visit the areas within the school designated on the graph. Visit each area in the order listed, left to right, on the graph.

   Note: *If more than one group will be conducting noise pollution investigations, consider assigning additional, different areas of the school to be monitored rather than having all groups monitor the same areas.*
3. Upon arrival at the first area, one member of the investigation group sets the tape recorder on the record position and, while standing in the door, holds the recorder at waist level. Students should not interfere with the class in session.
4. While the group member operating the recorder makes a 30 count recording, the remainder of the group stands outside the door and watches the recording procedure. The recorder is not operated when walking between areas.
5. The recording procedure described above is repeated at the other four designated areas. A different member of the group operates the tape recorder at each area.
6. After a recording has been made at all designated areas, the group returns immediately to the classroom.
7. Upon returning to the classroom, the investigation group replays the tape recording, listening carefully and watching the deflection of the needle on the recorder's audio-level meter. The purpose of replaying the tape recording is to rate the five recorded segments by degree of loudness. If the recorder does not have an audio-level meter, judge the loudness by majority vote of the group.
8. After the investigation group has a consensus on rating the tape recorded segments, have the group plot the rating scale on the sound level investigation graph.
9. Return all equipment and materials.
10. After all groups in the class have completed their graphs, lead a discussion/examination to develop a class consensus as to which of the five designated areas has the highest sound level. (If two or more areas are tied for the highest sound level, send the investigation group back to these areas to re-record, this time setting the volume control at the loudest level.) Discuss whether any of the investigated areas should be declared a hazard area to prevent human injury.

G. Follow-Up:

1. Discuss the advantages and disadvantages of the careers classified in the pollution prevention and control job family.
2. Discuss the importance of the work of this job family.

3. Discuss the personal qualifications needed by those who aspire to careers classified in this job family.
4. Have students evaluate their suitability for employment in careers classified in the pollution prevention and control job family.

Sound Level Investigation Graph

Sound Level					
Loudest	☐	☐	☐	☐	☐
2nd loudest	☐	☐	☐	☐	☐
3rd loudest	☐	☐	☐	☐	☐
4th loudest	☐	☐	☐	☐	☐
Most quiet	☐	☐	☐	☐	☐
AREA	**library**	**gym**	**math class**	**office**	**computer literacy class**

Noise Pollution

During recent years there has undoubtedly been an increase in environmental noise. In addition, everyone has become more aware of noise. Although the growth of noise may be a symbol of growth in technology, the increased awareness of the public toward noise has brought on a rapid response everywhere in trying to abate noise.

Just as "feet" are used to measure distance, and "degrees" are used to measure temperature, "decibels" are used to measure sound intensity. The ear is responsive to sounds having a tremendous spread in intensity variation: a "strong" sound, such as a diesel truck, may produce sound energy that is 1,000,000,000 times greater than that produced by a "weak" sound such as a cricket, for example. Because of this large spread in everyday signal strengths, and because the sensitivity of the ear is more nearly logarithmic than linear in its response, it was determined long ago to express sound levels in logarithmic units called decibels. The decibel is abbreviated to "dB." Sound or noise measurements in terms of human response are described as A-weighted and are expressed in "dBA." The louder the sound, the higher the decibel reading.

If people were not bothered by noise, there would be no noise pollution problem. Since people are bothered by noise, it is helpful to know some of the ways people judge noise. The degree of disturbance or annoyance of an unwanted noise depends on three things: (1) the amount and nature of the intruding noise, (2) the amount of background noise present before the intruding noise, and (3) the nature of the working or living activity of the people occupying the area where the noise is heard.

Some common things which can be referred to as pollutants because they emit intruding noise are tractor trailer trucks, jet airplanes, construction equipment, heavy machinery and tools, gunfire, and trains.

Excessive exposure to undesirable noise pollution can adversely affect the human capability to hear at all normal frequency levels. Because of this, the Occupational Safety and Health Act of 1970 (OSHA) established maximum permissible noise exposures for persons working in noisy environments. These OSHA standards and common indoor/outdoor noise levels are depicted on the next page:

OSHA Permissible Noise Standard

Duration per Day in Hours	Sound Level in dBA
8	90
6	92
4	95
3	97
2	100
1½	102
1	105
½	110
¼ or less	115

Excerpted from: *Fundamentals and Abatement of Highway Traffic Noise* by Bolt, Beranck and Newman, Inc., for U. S. Department of Transportation, DOT-FH-11-7976, May 1973.

Cluster: Environment
Activity II: Bugbusters

A. **Purpose of Activity:** This activity simulates the nature of work associated with the disease prevention job family.

B. **Basic Skills Applications:** In completing this activity, students will apply the following fundamental academic principles:

- Observe insects in their environment.
- equence an environmental science investigation.
- Interpret the long-term effects of the use of insecticides.
- Observe chemical reactions.
- Measure chemical quantities.
- Identify variables remaining constant, variables being manipulated, and variables responding in a chemistry experiment.

C. **Approximate Time Required:** One class period.

D. **Materials Needed:**

Material	**Source**
Paper nut cups, 1¼ oz. (2 per student)	Discount store
Cornmeal, 2 lb. package per class with plastic container	Grocery store or School cafeteria
Garden sulphur, 1 lb. per class (plastic container)	Local nursery
Plastic measuring spoons (2 sets) Discount store	Discount store
Loyalty compressed air sprayers, model #182 or suitable substitute (2-gallon sprayer)	Hardware store or vocational agriculture class
Pint jar with screw top	Obtain locally
Instant coffee (2 tablespoons per class)	Grocery store
Vinegar (1 tablespoon per class)	Grocery store
Old newspapers	Obrain locally
Paper towels	School supply
Pestain information sheet	Included

E. **Before You Start:**

1. Secure administrative approval.
2. Invite an exterminator to speak to your class and to assist with this activity.
3. Prepare one pint of "Pestain" insecticide using the following recipe: Mix one pint of water (cold or hot), 2 tablespoons instant coffee, and 1 tablespoon vinegar in the pint jar. Have students read Pestain information sheet.

4. Assist students in setting up the materials and equipment on two activity stations covered with newspapers as follows:

   Note: *For the insect activity station, use a desk that has empty drawers.*

Insect Station	Rodent Station
Pint jar of "Pestain"	Small nut cups 1¼ oz.
2 gallon sprayer	Plastic container
Extra newspapers	Cornmeal
Pestain information sheet	Plastic container of garden sulphur
Measuring spoons set	Measuring spoon set
Sprayer operation instructions	

5. Discuss the language arts and computational skills required in this job family. Also discuss the toxic chemical used and the health hazards.

F. Step-by-Step Procedure:

1. At the insect station, read the sprayer operating instructions.

   Note: *Do not allow students to operate sprayer!*

2. At the insect station, put approximately one gallon of cold water in the sprayer tank and add three tablespoons of the previously prepared "Pestain pesticide."
3. Attach the pump cover to the tank and follow the operating instructions to pressurize the tank.
4. Spray the diluted "pesticide" into the surface cracks of the insect station desk, after removing drawers. Wipe excess spray off furniture and classroom floor with extra newspapers or paper towels.
5. After five minutes spraying time, pour off unused "pesticide," dry the sprayer and return it to the insect station, then wash hands thoroughly.
6. Move to the rodent station and distribute two small paper nut cups to each student in the class.
7. Compound (mix) the "rat poison" on a piece of newspaper using two teaspoons of cornmeal and one teaspoon of sulphur.
8. Mix the "rat poison" well with the measuring spoon handle and, holding the newspaper like a funnel, pour approximately equal amounts of the "rat poison" into each student's two empty paper nut cups.
9. Have students place their filled nut cups at two hard-to-reach locations in or around the classroom. One location should be high overhead and the other low on the floor behind some large object.

   Note: *The gym would also be a good place to put "rat poison."*

10. Clean the rodent station, discarding the used newspaper and washing the mixing spoons. Clean the insect station.
11. Wash hands thoroughly.

G. Follow-Up:

1. Discuss the careers classified in the disease prevention job family.
2. Discuss the hazards associated with the disease prevention job family.
3. Discuss the advantages and disadvantages associated with the nature of work of this job family.
4. Have students evaluate their suitability for employment in a career classified in the disease prevention job family.
5. Have students retrieve and discard their cups of "rat poison" that they hid previously. Discuss how this "rat poison" would have to be discarded if it were, indeed, toxic.

> **Note:** *This is a good time to point out the health hazards created by unauthorized dumping of toxic waste.*

Pestain

How Pestain Kills

This concentrate is effective because it kills all crawling insects. It kills upon contact, or by stomach poisoning, thereby killing insects that tend to hide in inaccessible places.

Directions for Use

Read caution statements thoroughly before using. Apply this product in a diluted liquid spray. The diluted solution should not exceed one pint concentrate to one gallon water.

Caution

Keep out of reach of children. Harmful if swallowed. For first aid in case any insecticide is swallowed: Give a tablespoon of salt in a glass of warm water. Repeat until vomit fluid is clear. Keep patient warm. Call a physician immediately.

Avoid skin contact. Wash thoroughly with soap and water. For the eyes, get medical attention; flush with water for 15 minutes. Avoid contamination of feed or food. This product is toxic to fish and wildlife.

Destroy this container when empty. Do not reuse this container. Do not store this container near an open flame.

Cluster: Environment
Activity III: A Beautiful City Begins with Me!

A. **Purpose of Activity:** This activity simulates the nature of work associated with the pollution prevention and control job family.

B. **Basic Skills Applications:** In completing this activity, students will apply the following fundamental academic principles:

- Demonstrate safety while performing manipulative skills in the field.
- Describe the effect of pollutants on the ecological balance.
- Exhibit productive work habits and attitudes.

C. **Approximate Time Required:** One or two class periods—one out-of-class activity.

D. **Materials Needed:**

Material	Source
Trash bags	Obtain locally
Paper	Student supplied
Pencils/pens	Student supplied

E. **Before You Start:**

1. Have students investigate pollution in your city. Have them list the sources, what could be done to alleviate the problems, and their plans for action.
2. Consider coordinating this activity with the science teacher.
3. Secure administrative approval for the out-of-class portion of this activity.

F. **Step-by-Step Procedure:**

1. Have students compare their lists of pollution sources to determine priority areas.
2. Initiate a city-wide clean-up day (a Saturday morning or after school).
3. In addition, have students participate during each class period by cleaning the school campus.

G. Follow-Up:

1. Discuss the effect of pollution on our environment.
2. Discuss the advantages and disadvantages of careers classified in the pollution prevention and control job family.
3. Discuss the personal qualifications needed by those who aspire to occupations in this job family.
4. Have students evaluate their suitability for employment in a career classified in the pollution prevention and control job family.

Cluster: Fine Arts and Humanities
Activity I: A Picture Is Worth a Thousand Words

A. **Purpose of Activity:** This activity simulates the nature of work associated with the visual arts job family.

B. **Basic Skills Applications:** In completing this activity, students will apply the following fundamental academic principles:

- Design, develop, and create original artworks.
- Apply unity, emphasis, balance, variety, movement, and proportion.
- Exhibit productive work habits and attitudes.

C. **Approximate Time Required:** One class period per activity.

D. **Materials Needed:** The visual arts job family encompasses a variety of careers in which the nature of work is similar. For this reason, several activities are recommended for this job family (see Section F below). Allow students to choose which careers they will simulate. The materials needed, of course, will depend upon the activity chosen.

E. **Before You Start:**

1. Have students discuss the variety of careers classified in the visual arts job family.
2. If possible, invite local resource persons to speak to your class concerning their careers.
3. Consider coordinating this activity with the art teacher.

F. **Step-by-Step Procedure:**

1. Have students select careers to simulate.
2. The following are examples of careers and activities which may be used:
   a. The letterer paints or draws precise lettering using a lettering pen or brush. Have the students prepare signs for your room.

      Examples: *Career Resource Area, Career Magazines, Supplies.*

   b. The cover design artist designs and renders cover illustrations for publications. Have students design covers for a magazine, a book, or a phonograph record album.
   c. The clothes designer creates, designs, and prepares patterns for new types and styles of clothing. Have the students design an article of clothing and sketch it on paper.
   d. The cartoonist draws cartoons, delineating in successive drawings action necessary to portray animation of characters. Have the students create and sketch their own cartoons.

   e. The commercial photographer photographs virtually anything the consumer wishes to purchase. Have the students prepare an exhibit of photographs they have taken.

3. Have students display their completed artwork. Consider having an art fair and awarding prizes for the top winners in each category.

G. Follow-Up:

1. Discuss the advantages and disadvantages of the nature of work associated with the visual arts job family.
2. Discuss the methods artists use to sell their works. Explain that many artists do not receive a steady income.
3. Discuss courses and/or experiences which would assist those who aspire to careers in the visual arts job family.

Cluster: Fine Arts and Humanities
Activity II: Using Your Writing Talents

A. **Purpose of Activity:** This activity simulates the nature of work associated with the writing job family.

B. **Basic Skills Applications:** In completing this activity, students will apply the following fundamental academic principles:

- Examine a variety of poetic forms.
- Recognize literary devices common to poetry.
- Understand the role of rhyme.
- Understand the role of meter.
- Recognize terminology associated with poetry.
- Apply literary skills related to poetry.

C. **Approximate Time Required:** One class period.

D. **Materials Needed:**

Material	Source
Paper	Provided by student
Pens/Pencils	Provided by student
Career Resources	Classroom and/or library

E. **Before You Start:**

1. Have students review the careers classified in the writing job family.
2. Consider coordinating this activity with English teachers.

F. **Step-by-Step Procedure:**

1. Discuss the nature of work associated with the writing job family.
2. Inform students that they will be performing the work tasks of the poet.
3. Have students research different forms of poetry to assist them in composing their own.
4. Students' poems should reflect what they think their lives will be like ten years from now.
5. Have students submit their poems to you. Have those students who are willing share their poems with their classmates.

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G. Follow-up:

1. Discuss the advantages and disadvantages of the nature of work associated with the writing job family.
2. Discuss the personal qualifications needed by those who aspire to careers classified in this job family.
3. Discuss education/training requirements needed to pursue employment in the writing job family.

Cluster: Fine Arts and Humanities
Activity III: Archaeological Expedition

A. **Purpose of Activity:** This activity simulates the nature of work associated with the history and museums job family.

B. **Basic Skills Applications:** In completing this activity, students will apply the following fundamental academic principles:

- Gain an appreciation of artifacts.
- Acquire competencies essential for handling selected materials to accomplish goals.
- Classify objects according to prescribed instructions.
- Exhibit productive work habits and attitudes.
- Analyze the impact of science and technology on social and cultural development.
- Describe developments in cultural-related activities.

C. **Approximate Time Required:** One class period.

D. **Materials Needed:**

Material	Source
White glue, 4 to 7 oz. bottle	School supply
Felt tip pens (2)	School supply
Masking tape, ½-in. x 144-in. roll	School supply
Index cards, 3-in. x 5-in. (25)	School supply
Wooden stakes, 12-in. long (4-8)	Construct locally
Sifting screens, 18-in. x 24-ft @ x ⅛-in. mesh	Construct locally or lumber company donation
Small flower vases (2)	Local store or garage sales
Small sandwich bags (25)	Local store
Heavy string or cord 50 ft	Local store
Paint brushes, 2 in. (6)	Local store
Small hand gardening tools (8 to 10)	Local store or school maintenance
Paper and pencil	Provided by student

E. **Before You Start:**

1. Obtain and prepare all the suggested materials listed in Section D.
2. Gain approval from appropriate authorities for a place on the school campus to break the flower vases and bury pieces 2-in. to 6-in. deep. Stake out a 10-ft x 15-ft area around the burial site.
3. Consider using audiovisuals and career resources to assist the class in gaining an understanding of the characteristics of an archaeological dig.

4. Suggest to the class that they may want to visit a local museum or antique store to gain an appreciation for old items and to observe how these items are classified and displayed according to title, purpose, and value.
5. Consider coordinating this activity with the history teacher.

F. Step-by-Step Procedure:

1. Using the knowledge gained through audiovisuals, study trips, class discussions, and/or personal research, have the class engage in a brainstorming session to plan an archaeological expedition for "American Indian artifacts." Objectives for the brainstorming session are:
   a. Identification of students who will compose the two digging teams.
   b. Identification of students who will compose the display teams.
   c. Determine specific tasks to be performed by the teams.

   Examples are:

Digging Teams	**Display Teams**
Digging with tools	Receiving and classification
Screening of soil	Brushing and cleaning
Hand searching and sorting	Reconstruction
Identification and tagging	Display preparation

2. When directed, the class divides into appropriate work parties.
3. Using tools and screens, the digging teams dig in the designated area, sift the loose earth through the screens, and locate parts of the broken flower vases. The digging teams tape each piece to a 3-in. x 5-in. card, number the card, and record the location found.

   Example: *Piece 1, northeast corner of dig, 2 in. deep.*

4. The display teams receive the cards with pieces of matter believed by the digging teams to be parts of vases. Each piece is removed from the card, verified as a vase part or "scrap," brushed clean, and bagged with information card.
5. Reconstruction members of display team remove parts from bags and glue the pieces together.
6. Following reconstruction, the vases are displayed and a display card is prepared with the following information:
   a. Name of vase
   b. Date and location found
   c. Description and purpose
   d. Estimate of value
7. The activity is concluded by having the class vote on the most appropriate display.

G. Follow-Up:

1. Discuss items usually discovered in archaeological digs.

2. Discuss impact of science and technology on social and cultural development.
3. Discuss reasons why artifacts and other items are sought by archaeologists.
4. Discuss the advantages and disadvantages of the nature of the work associated with the history and museums job family.
5. Have students list in writing at least three types of tools or kinds of materials used by workers whose careers are classified in this job family.
6. Discuss the personal qualifications needed by those who aspire to careers classified in the history and museums job family.
7. Have students identify their suitability for employment in the careers classified in the history and museums job family.

Cluster: Health
Activity I: Emergency Medical Treatment

A. **Purpose of Activity:** This activity simulates the nature of work associated with the emergency medical services job family.

B. **Basic Skills Applications:** In completing this activity, students will apply the following fundamental academic principles:

- Exhibit skills in injury control and emergency action.
- Demonstrate skills in first aid.
- Exhibit productive work habits and attitudes.
- Follow both oral and written directions.

C. **Approximate Time Required:** One class period.

D. **Materials Needed:**

Material	Source
Two wooden splints 18-in. x 4-in. x 1/4-in.	Locally constructed, school nurse, or local doctor's office
Three cloth strips 24-in. x 3 ft	Locally constructed, school nurse, or local doctor's office
One triangular cloth arm sling, 55-in. across the base and 36-in. to 40-in. along sides	Locally constructed, school nurse, or local doctor's office
Safety text	Local Red Cross Chapter
Incident Report Form	Included (duplicate locally)

E. **Before You Start:**

1. Review the pages of the Red Cross safety text pertaining to fractures and hemorrhages.
2. If possible, invite an emergency medical technician to your class to explain his/her career and assist with this activity.
3. Construct required materials listed under Section D.
4. Discuss closed and open fractures, deformities, and the word **hemorrhage** with the class.
5. Explain the following activity.

F. **Step-by-Step Procedure:**

1. Divide class into groups of five students.
2. Designate the first group of students who will play the roles of emergency medical technicians (EMT), an EMT leader, and the injured patient.

3. Patient sits or lies on the floor at the front of the classroom, moaning that his/her right arm hurts.
4. Emergency medical team arrives, clears bystanders 4 to 6 feet away from patients.
5. EMT leader questions patient as to how injury occurred and what part of body hurts. Leader diagnoses that right arm has a possible closed fracture because of slight deformity and tenderness and/or pain when arm is touched.
6. EMT leader and first assistant splint patient's right arm and rig sling. The splinted arm should be held upward at about a 15 degree angle.
7. While splint and sling are made for patient, second EMT assistant completes the incident report form for the EMT leader and keeps bystanders out of the way. By slowly and quietly talking to the patient, the third EMT assistant attempts to keep the patient calm.
8. A good duration for this activity is 10 minutes. The activity can be repeated as often as desired to allow each group of students to role-play the injured patient and emergency medical technicians.

G. Follow-Up:

1. If possible, arrange for a representative from your local Red Cross chapter to demonstrate to your class the CPR process and the choking preventative (Heimlich manuever).
2. Discuss the advantages and disadvantages of careers in the emergency medical services job family.
3. Discuss the personal qualifications needed by those who aspire to careers classified in the emergency medical services job family.
4. Discuss other careers in this job family, including new and emerging careers associated with trauma units.

Emergency Medical Team

Incident Report

Patient Name: ________________________________ Date: ____________

Address: ____

Incident Location: ____

Summary of Incident: ____

____

____

Description of patient problem: ____

____

____

Patient was: (check as appropriate)

Unconscious ____________
Hemorrhaging ____________
In Shock ____________

Required medication ____________
Restrained ____________
Under the Influence ____________

Other persons involved: YES NO OTHER (Describe) ____________

If so, give names: ____

Other medical or emergency agencies present: ____

Summary of treatment given patient: ____

____

____
Signature EMT Leader

____
First Assistant

____
Second Assistant

____
Third Assistant

Cluster: Health
Activity II: Join The Medical Profession

A. **Purpose of Activity:** This activity simulates the nature of work associated with the medical professions job family.

B. **Basic Skills Applications:** In completing this activity, students will apply the following fundamental academic principles:

- Demonstrate the ability to take vital signs.
- Develop an understanding of anatomical physiology as it relates to vital signs.
- Develop an awareness of communication systems utilized by the health care delivery system.
- Identify elements of the metric system.
- Exhibit productive work habits and attitudes.

C. **Approximate Time Required:** One class period.

D. **Materials Needed:**

Materials	**Source**
Blood pressure instrument (aneroid sphygmomanometer)	Local health occupations class or school nurse
Stethoscope	Same
Oral thermometer with antiseptic holder, or thermometer strips	Same
Percussion reflex hammer	Same
Chest X-ray (frontal)	Local doctor
Overhead projector	Library
Eye exam chart	Included
Watch or wallclock with second hand	Locally supplied
Small gauze pads (one per student)	Local discount store or school nurse

E. **Before You Start:**

1. Arrange to have a nurse or doctor discuss his/her career with the class and assist students in conducting and evaluating this activity.
2. Establish five activity stations in the classroom as follows:
   a. Blood pressure and pulse rate measurement.
   b. Temperature check.
   c. Leg and foot reflex check.
   d. Eye examination.
   e. X-ray observation.

3. Describe to the class the procedure to follow at each activity station. Consider the assignment of student monitors to each station to preclude misuse of equipment and to ensure that station is properly set up for successive groups of students.

F. **Step-by-Step Procedure:**

1. Instruct students to go to each activity station, perform the required activity and record results on a sheet of note book paper. Students may work in pairs or small groups, going to stations in any order desired.
2. At the blood pressure/pulse rate station, students follow the published instructions which come with the equipment to measure their own blood pressure/pulse rate.
3. At the temperature station, students remove thermometer from the antiseptic solution, wipe dry with a gauze pad (or use thermometer strips), and measure their own body temperature. They should record results in degrees Fahrenheit and return the thermometer to the antiseptic solution (or throw away the thermometer strip).
4. At the reflex station, students scrape handle of rubber percussion hammer along the bottom of the foot to see if toes curl. They also cross one leg over the other and strike the crossed leg just below the knee to see if foot jumps forward. Results are recorded positive or negative.
5. At the X-ray station, students view the chest X-ray using the light from the overhead projector. They record their opinion as to whether the X-ray is normal or abnormal.
6. At the eye exam station, students check and record 20/20 vision or less by observing the footage indicators given. Mark off appropriate spaces.
7. As a final activity, students record their opinion of their own state of health as excellent, good, or fair.

G. **Follow-Up:**

1. Discuss the advantages and disadvantages of careers in the medical professions job family.
2. Discuss the variety of careers which are classified in this job family.
3. Discuss the personal and educational/training qualifications needed by those who aspire to the careers classified in the medical professions job family.
4. Have students evaluate their suitability for employment in those careers classified in the medical professions job family.

SNELLEN SCALE

E 200 ft

H N 100 ft

D F N 70 ft

P T X Z 50 ft

U Z D T F 40 ft

D F N P T H 30 ft

P H U N T D Z 20 ft

N P X T Z F H 15 ft

National Society for the Prevention of Blindness, Inc.
79 Madison Avenue, New York, N.Y. 10016
Member of National Health Council

Cluster: Health
Activity III: Don't Say No to This Exercise!

A. **Purpose of Activity:** This activity simulates the nature of work associated with the pharmaceutical science and services job family.

B. **Basic Skills Applications:** In completing this activity, students will apply the following fundamental academic principles:

- Perform basic operations on numbers.
- Count, using objects.
- Classify geometric shapes.
- Evaluate and make judgments.
- Follow a set of directions.
- Use a nonconventional format.

C. **Approximate Time Required:** One class period.

D. **Materials Needed:**

Material	**Source**
Pharmaceutical pamphlets and posters	Local druggist
Empty medicine bottles	Same
Simulated medicines (M & Ms, Red Hots)	Grocery store
Counting tray and tool (one set for each center)	Local druggist
Lab coat (one for each center)	Local druggist or doctor
Prescription sheets	Included (duplicate locally)
"In" and "Out" boxes (one for each center)	School supplied
Gummed labels	Local druggist
Manual typewriter (one for each center)	School typing class or office
Pharmaceutical step-by-step procedure	Included (duplicate locally)

E. **Before You Start:**

1. If using candy to simulate medicines would cause class disruption, consider popcorn kernels, dried beans, peas, etc. Alter prescriptions to reflect this change.
2. Secure all materials and equipment.
3. Set up activity centers in this manner:

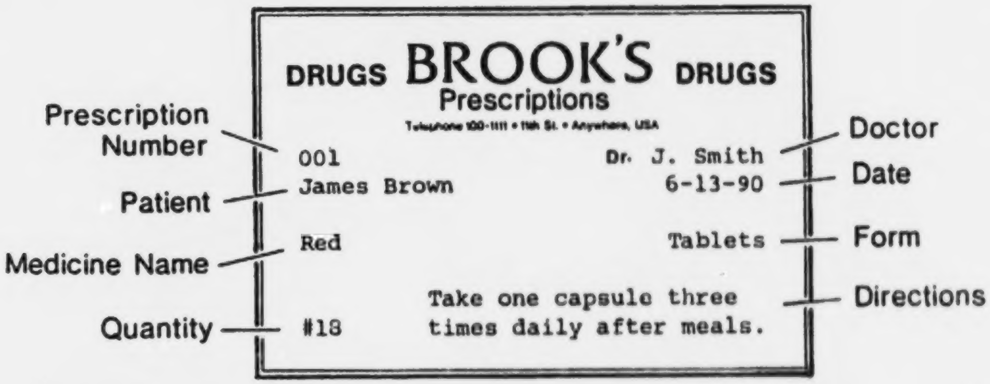
Typewriter
3 medicine bottles
25 brown M & Ms
25 green M & Ms
30 Red Hots
Counting tray and tool
"In" and "Out" boxes
3 prescriptions in "In" box
Gummed labels

4. If possible, schedule a pharmacist to speak to your class or allow students to participate in a career study tour of a local pharmacy.
5. Fill in the prescription by completing the date, using the patient's name, and the signature (initials) of a local medical doctor.
6. Reproduce copies of Pharmaceutical Step-by-Step Procedure for use by each activity center.

F. Step-by-Step Procedure:

1. Have students select and read one of the prescriptions in the "In" box. Verify that the prescription contains the following required elements:

   Name of patient
   Date prescription was issued
   Signature of medical doctor authorizing the medicine
   Name of the medicine prescribed
   Quantity of the medicine prescribed
   Directions for administering the prescribed medicine
2. If the prescription fails to contain all of the required elements, note the missing element(s) on the back, place it in the "Out" box, and go on to the next prescription.
3. If there is sufficient quantity of the prescribed medicine, pour some out on top of the counting tray. Count out the quantity prescribed by pushing the tablets into the open recessed portion of the tray using the counting tool. Take care not to touch the medicine with the bare hands.
4. Close the hinged top over the counted quantity and, tipping the tray away from you, return the excess tablets to the storage container.
5. Insert a blank label into the typewriter and type the prescription information on the label exactly like the following example:



DRUGS BROOK'S DRUGS
Prescriptions
Telephone 100-1111 • 11th St. • Anywhere, USA

001 Dr. J. Smith
James Brown 6-13-90

Red Tablets

Take one capsule three
#18 times daily after meals.

Prescription Number
Patient
Medicine Name
Quantity
Doctor
Date
Form
Directions

6. Select the appropriate size medicine container and place the typed, gummed label on the outside of the container.
7. Holding the hinged top closed, tip the tray to pour the prescribed quantity of medicine into the container. Place the cap on the container and return the tray to the work surface.

8. Place the filled prescription in the "Out" box.
9. Continue the above described sequence of events until the three prescriptions have been filled.

G. Follow-Up:

1. Use the following key to evaluate each student's performance.

Prescription	**Results**
001	10 Brown tablets (M & Ms)
002	22 Red tablets (Red Hots)
003	Prescription not filled; quantity not indicated

2. Because of the exactness of this profession, students should have filled all or most prescriptions correctly to evaluate themselves a total success.
3. Discuss the advantages and disadvantages of careers classified in the pharmaceutical science and services job family.
4. Discuss the personal and educational/training qualifications needed by those who aspire to the careers in this job family.
5. Have students evaluate their suitability for employment as a pharmacist.

Prescriptions

Date

Patient

Prescription Brown

Form Tablets

Quantity 10

Directions One after every meal.

Signature

Date

Patient

Prescription Red

Form Tablets

Quantity 22

Directions One tablet every two hours.

Signature

Date

Patient

Prescription Green

Form Tablets

Quantity

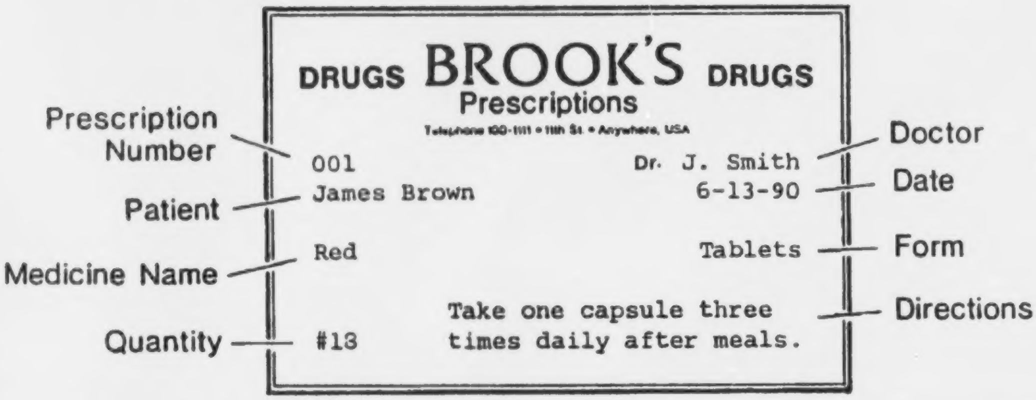
Directions Take as needed for pain.

Signature

Pharmaceutical Step-by-Step Procedure

1. Select and read one of the prescriptions in the "In" box. Make sure that the prescription contains the following required elements:

   Name of patient
   Date prescription was issued
   Signature of medical doctor authorizing the medicine
   Name of the medicine prescribed
   Quantity of the medicine prescribed
   Directions for administering the prescribed medicine
2. If the prescription fails to contain **all** of the required elements, note the missing element(s) on the back, place it in the "Out" box, and go on to the next prescription.
3. If there is enough of the prescribed medicine, pour some out on top of the counting tray. Count out the quantity prescribed by pushing the tablets into the open recessed portion of the tray using the counting tool. Take care not to touch the medicine with the bare hands.
4. Close the hinged top over the counted quantity and, tipping the tray away from you, return the excess tablets to the storage container.
5. Insert a blank label into the typewriter and type the prescription information on the label exactly like the following example:



DRUGS BROOK'S DRUGS
Prescriptions
Telephone 100-1111 • 11th St. • Anywhere, USA

001 Dr. J. Smith
James Brown 6-13-90

Red Tablets

Take one capsule three
#13 times daily after meals.

6. Select the appropriate size medicine container and place the typed, gummed label on the outside of the container.
7. Holding the hinged top closed, tip the tray to pour the prescribed quantity of medicine into the container. Place the cap on the container and return the tray to the work surface.
8. Place the filled prescription in the "Out" box.
9. Continue the above described sequence of events until the three prescriptions have been filled.

Cluster: Hospitality and Recreation
Activity I: Planning a Vacation

A. **Purpose of Activity:** This activity simulates the nature of work associated with the travel bureau/travel agencies job family.

B. **Basic Skills Applications:** In completing this activity, students will apply the following fundamental academic principles:

- Predict probable future outcomes or actions.
- Follow a set of directions.
- Use graphic sources.
- Use a variety of techniques to select topics.
- Develop skills in writing effectively.
- Rearrange information for a specific purpose.

C. **Approximate Time Required:** One to two class periods.

D. **Materials Needed:**

Material	**Source**
Texas road maps	Local service stations or State Highway Department
Informational brochures	Department of Parks and Tourism
Local telephone books	School and/or student supplied
Local newspapers (Sunday edition)	Provided by student
Paper and pencil	Provided by student
Vacation planning sheet	Included

E. **Before You Start:**

1. Invite a travel agent to speak to your class and assist with this activity.
2. Reproduce a copy of the vacation planning sheet for each class member.
3. Obtain the road maps and tourist brochures.
4. Request that students bring phone books and newspapers the day prior to the activity. Sunday newspapers are recommended because they will have more information about entertainment and social functions.
5. Become familiar with all resource materials.
6. Consider arranging the resource materials in a learning center display.
7. Make arrangements for library use if expanded research activities are desired.

F. Step-by-Step Procedure:

1. Introduce the activity, briefly discussing some of the job characteristics associated with tourism. Stress the people to people aspect on this occupational area. Discuss the fact that a travel bureau has many of the types of equipment and materials found in modern offices.
2. Divide the class into four or five large groups and have each group elect a spokesperson and a secretary.
3. Distribute a vacation planning sheet to each student.
4. Call attention to the display of resource materials. Explain that each group will collectively plan a four-day in-state vacation by completing a single planning sheet for the group.
5. Further remark that each member of the group should have a part in planning the vacation. Allow about half a class period for the group planning.
6. When group planning has been completed, each group's spokesperson will orally propose the group's vacation plans to the whole class. Limit the oral proposals to equal time for each group.
7. Following all group proposals, have the class vote on which vacation they would like to take.

G. Follow-Up:

1. Have students plan a vacation abroad.
2. Have students prepare a vacation travel brochure about their local community.
3. Discuss the advantages and disadvantages of careers classified in the travel bureau/travel agency job family.
4. Discuss the personal qualifications and educational/training requirements necessary for employment in this job family.
5. Have students evaluate their suitability for employment as a travel agent.

Vacation Planning Sheet

Directions: Plan a four-day vacation for your group. The following topics should be considered before a final decision is made:

Lodging	Type, availability, convenience to location.
Food	Standard, continental, specialty.
Transportation	Method, distance, time required.
Activities	Physical, mental, restful, combination.
People Aspects	Number in party, personal preference.
Economic Factors	Amount, waiting period, quality, cost.

Select one member of your group to be the secretary, who will record vacation plans on the following schedule. Select another member to be the spokesperson, who will present the group's vacation plan to the class.

DAY	TIME	LOCATION	PRIMARY ACTIVITY	SECONDARY ACTIVITY
1				
2				
3				
4				

Cluster: Hospitality and Recreation
Activity II: *U.S.S. Investigation*

A. **Purpose of Activity:** This activity simulates the nature of work associated with the transportation job family.

B. **Basic Skills Applications:** In completing this activity, students will apply the following fundamental academic principles:

- Follow both oral and written directions.
- Exhibit productive work habits and attitudes.
- Exhibit creativity.

C. **Approximate Time Required:** One class period.

D. **Materials Needed:**

Material	Source
Stewards' jackets or large, white, long-sleeved or men's shirts (4)	Local uniform store, restaurant supply, department store, or provided by students' fathers
Blankets or flat, full-size sheets (3 or 4)	Local department store or school health room
Small serving trays (3 or 4)	Local department store or school cafeteria
Parlor games and cards (3 or 4)	Provided by students
Set of TV trays (4)	Local department store
Four oz. paper cups, at least 1 per student	Local grocery store
Two packages of Kool-Aid mix, (make 1 gal. per class)	Local grocery store
Saltine crackers, ½ lb. box per class	Local grocery store
M & Ms (one package)	Local grocery store
Dust rags, broom, mop	Borrow from school custodian
Half gallon pitchers (2)	Local department store or school home economics department
Paper plates, 4 or 5 per class	Local grocery store
Role-playing cards	Included

E. **Before You Start:**

1. Obtain all materials in Section D. The loan of these items from students, faculty, and the community could reduce the instructional cost.
2. Allow time for the class to arrange the room to simulate the upper deck of a cruise ship. There should be tables and chairs for passengers, an open area for recreation activities, a storage area for storing the supporting materials until they are needed for role-playing, a food service area for preparation of beverages and snacks, and space for lounging along the rail of the ship's deck.

3. Have the class elect the Captain of the ship. Require the Captain to appoint each of the remaining members of the class to one of the jobs depicted on the attached role-playing cards.
4. Consider reproducing the attached role-playing cards and posting them on a bulletin board. Encourage students to become familiar with their respective roles.
5. Consider writing the following nautical terms on the chalkboard and authorizing bonus points for those students who can use them in conversation during the activity.

Port = Left
Starboard = Right
Bulkhead = Wall
Deck = Floor
Hatch = Door
Ladder = Steps
Weather deck = Upper deck
Overhead = Ceiling
Aft = Rear
Forward = Front
Superstructure = Upper part of ship
Swab = Mop
Line = Rope

F. Step-by-Step Procedure:

1. Initiate the role-playing activity by informing the class of the following setting:

   "You are on the weather (upper) deck of the cruise ship *U.S.S. Investigation*, which is ready to set sail from her home port for a beautiful tropical island. While at sea, passengers can relax, play games, enjoy refreshments, talk with one another, and ask crew members for assistance if needed. When the *U.S.S. Investigation* arrives, she will dock at a small coastal town, popular for its native gift shops, excellent restaurants, and nearby active volcano. After passengers have had the opportunity to go ashore on the island, the *U.S.S. Investigation* will return to her home port."
2. Remind the class who the Captain of the ship is. Inform them that the ship's Captain has supreme authority on the high seas and that the Captain's decisions will be final during the activity.
3. Have the Captain start the activity by directing the First Mate to announce in a loud voice, three times: "All ashore that's going ashore!" The *U.S.S. Investigation* is now at sea.
4. Following the First Mate's announcement, the passengers and crew commence their role-playing performance. While the performance should allow for freedom of expression and be fun for the students, the Captain of the ship should maintain positive control to ensure as much realism as possible.
5. Monitor students.
6. The role-playing simulation continues until the Captain directs the First Mate to announce "Land Ho" prior to the *U.S.S. Investigation* docking in her home port. The activity should be concluded in sufficient time to allow for evaluation and rearrangement of the classroom.

G. Follow-Up:

1. Discuss careers classified in the transportation job family of the Hospitality and Recreation Cluster.
2. Discuss the advantages and disadvantages of careers classified in this job family.
3. Discuss the personal qualifications and educational/training requirements necessary for employment in the transportation job family.
4. Have students evaluate their suitability for employment in careers classified in this job family.

Role-Playing Cards

Captain of the Ship (1)

You are first in command of the ship and in total charge of the activity. Your job is to be friendly but formal with everyone. You will resolve any disagreements, render the final decision on any questions, and correct the actions of any of the ship's crew or passengers, as necessary. The First Mate is your assistant and will act in your behalf in your absence.

First Mate (1)

You are second in command of the ship. Your job is to help the Captain keep things running smoothly. You are to report to the Captain any problems that you cannot handle and to carry out the Captain's directions. You are directly responsible for ensuring that the ship's crew carry out their duties.

Ship's Doctor (1)

You are third in command of the ship. You are a general practitioner and are capable of treating all forms of illness and injury. The most common form of illness which you treat is seasickness. You may dispense not more than 2 pills (M & Ms) to any passenger in a one hour period. In cases of severe injury or contagious disease, you may have to confine passengers to their cabins or not let them disembark in a port. Your primary concern is the health and safety of the passengers. You would report problems to the First Mate.

Social/Recreation Director (1)

You are in charge of passenger recreation. You organize the time for various small group games, such as cards, checkers, shuffleboard, and volleyball. You also make arrangements for dances and parties that are held on board. You are in charge of music and setting the time refreshments are served. You are responsible for informing passengers of "on board" activities by printed notices or handouts, writing on the chalkboard, or oral announcements. You are responsible for seeing that passengers are enjoying themselves and are not left alone in their cabins all day. You have one assistant to help you in your duties. You will probably want to do a survey to determine what kind of games to plan for.You should refer any problems or questions to the First Mate only.

Stewards (3)

Your job is to attend to the needs of the passengers. Tasks which passengers may expect you to perform are the following:

- Arrange chairs and tables
- Bring blankets on cool days
- Serve food and beverages, clean up spillage
- Supply games or magazines
- Clean up tables and remove trash
- Bring message blanks and deliver messages
- Carry luggage and run errands
- Assist older or handicapped passengers

For rendering these services, you may expect passengers to give you a monetary tip. You are expected to be friendly and helpful in all that you do. Under no circumstances would you be dishonest or become angry. You are expected to respond as rapidly as possible to passenger requests and faithfully carry out the directions of the Captain, First Mate, and Ship's Doctor in every case. You refer problems or questions to the First Mate **only**.

Tour Guide (1 or 2)

You are employed by the Steamship Line to take small groups of passengers ashore when the ship docks at ports of interest. You must organize your group while at sea and radio the port city for transportation or dinner reservations. The size of your tour party must not exceed half the total number of passengers. You will probably want to draft a radiogram message for necessary reservations. On some tours there is considerable walking and mountain climbing. On these tours you cannot take handicapped persons as members of the tour party. You refer any problems or questions to the First Mate. Your personality is expected to be friendly and completely outgoing always.

Assistant Social / Recreation Director (1)

You assist the Social/Recreation Director in performing all duties. Your primary job is to set up and maintain all recreation equipment and games. Stewards come to you to get games for passengers. You have discovered that the swimming pool pump is not working and must report this to the director so the pool can be closed. You are also responsible for instructing how to play games and actually play games with passengers who do not have a partner. You report all questions or problems to the Social/Recreation Director **only**.

Passengers (Remainder of class)

You have paid your hard-earned money for this trip and expect it to be fun. You might be making the trip by yourself, with a friend, or with a member of your family. You might be enjoying the cool breezy weather or maybe you're cold and require a light blanket. You might be relaxing in a lounge chair, sitting at a table, or playing games. You might be seasick and need to see the doctor. When refreshments are served, you might want yours first, or you might want seconds before all are served. You might be standing **all alone** near the rail gazing out to sea. You might not like your cabin and want to see the First Mate or Captain about getting a different one. The Captain has authority to perform marriage ceremonies while at sea in case you want to marry one of the other passengers. Every passenger should not try to do all the above activities at the same time.

Cluster: Hospitality And Recreation
Activity III: Olympic Trials

A. **Purpose of Activity:** This activity simlulates the nature of work associated with the public, industrial, and private recreation job family.

B. **Basic Skills Applications:** In completing this activity, students will apply the following fundamental academic principles:

- Follow both oral and written directions.
- Improve skills necessary for successful participation in physical activities.
- Participate in varied physical/leisure-time activities that could be continued throughout life.
- Learn skills, rules, strategies, protocol, and safety practices appropriate to individual, dual, and team sports.

C. **Approximate Time Required:** One or two class periods.

D. **Materials Needed:**

Material	Source
Stop watches or wrist watches Specific items will depend upon activities chosen.	P.E. teacher

E. **Before You Start:**

1. Determine nine (or fewer) Olympic events such as discus, broad jump, relays, tumbling, jump rope, weight lifting, obstacle course, arm wrestling, checkers, tic-tac-toe, card games, etc.
2. Consider developing an informational center or bulletin board about sports-related careers.
3. Consider coordinating the activity with the school's physical education teacher(s).
4. Request the class to bring or wear appropriate clothing on the day planned for the activity. Tell students who are changing clothes to do it during the interval between classes before coming to the classroom.
5. Weather permitting, plan to accomplish the activity outside on a paved or well-grassed area.
6. Consider alternate activities for physically handicapped students.
7. Discuss careers classified in this job family.

F. **Step-by-Step Procedure:**

1. Allow the class to elect the "Greatest Athlete" to be the activity leader or trainer.

2. Let the elected trainer appoint nine (or fewer, depending on the number of Olympic events selected) of his/her classmates to be the judges for each exercise to be performed. Each should have his/her own watch.
3. Explain that the decisions of the student leaders are final. Each one is expected to record times accurately and judge group winners fairly.
4. Have each judge make "You're a Winner" slips to give to the students in each group who perform the events. Time is recorded on slips.
5. Divide the class into nine (or fewer) equal groups and let each group start performing one event. Each group rotates to a new event until all events have been accomplished.
6. As each group completes all events, the trainer collects the "You're a Winner" slips and compares times to identify the winner in each of the Olympic event areas. If desired, an overall winner could be identified.
7. Award winners a prize.
8. Allow time to change clothes if necessary.

G. **Follow-Up:**

1. Discuss advantages and disadvantages of the careers classified in the public, industrial, and private recreation job family.
2. Discuss the manner in which individuals become professional athletes.
3. Discuss the widespread trend of initiating wellness programs in business and industrial settings.
4. Discuss the importance of physical activity and leisure time as a means for alleviating stress.
5. Discuss the impact technology and higher personal income levels will have on this job family.
6. Have students evaluate their suitability for employment in careers classified in the public, industrial, and private recreation job family.

Cluster: Manufacturing
Activity I: Selecting a Prototype

A. **Purpose of Activity:** This activity simulates the nature of work associated with the scientists job family.

B. **Basic Skills Applications:** In completing this activity, students will apply the following fundamental academic principles:

- Demonstrate clear and logical thinking in support and development of a central idea.
- Perceive cause and effect relationships.
- Predict probable future actions and outcomes.
- Follow both oral and written directions.

C. **Approximate Time Required:** One class period.

D. **Materials Needed:**

Material	Source
Manufacturing Patterns	Included
Felt tip pens (1 set per student)	Provided by school or student
White paper (8½-in. x 11-in.)	Provided by school
Sewing notions and fabric (optional)	Donated by parents, community members, etc.

E. **Before You Start:**

1. Explain to students that before manufacturing can occur, what is to be manufactured must be invented. A model or prototype, as it is referred to in industrial jargon, must be constructed.
2. Explain that the prototype helps the manufacturer know how the finished product should look.
3. If possible, invite a resource person whose career is classified in the scientists family to speak to your class.
4. Reproduce manufacturing patterns.
5. Secure supplies.

F. **Step-by-Step Procedure:**

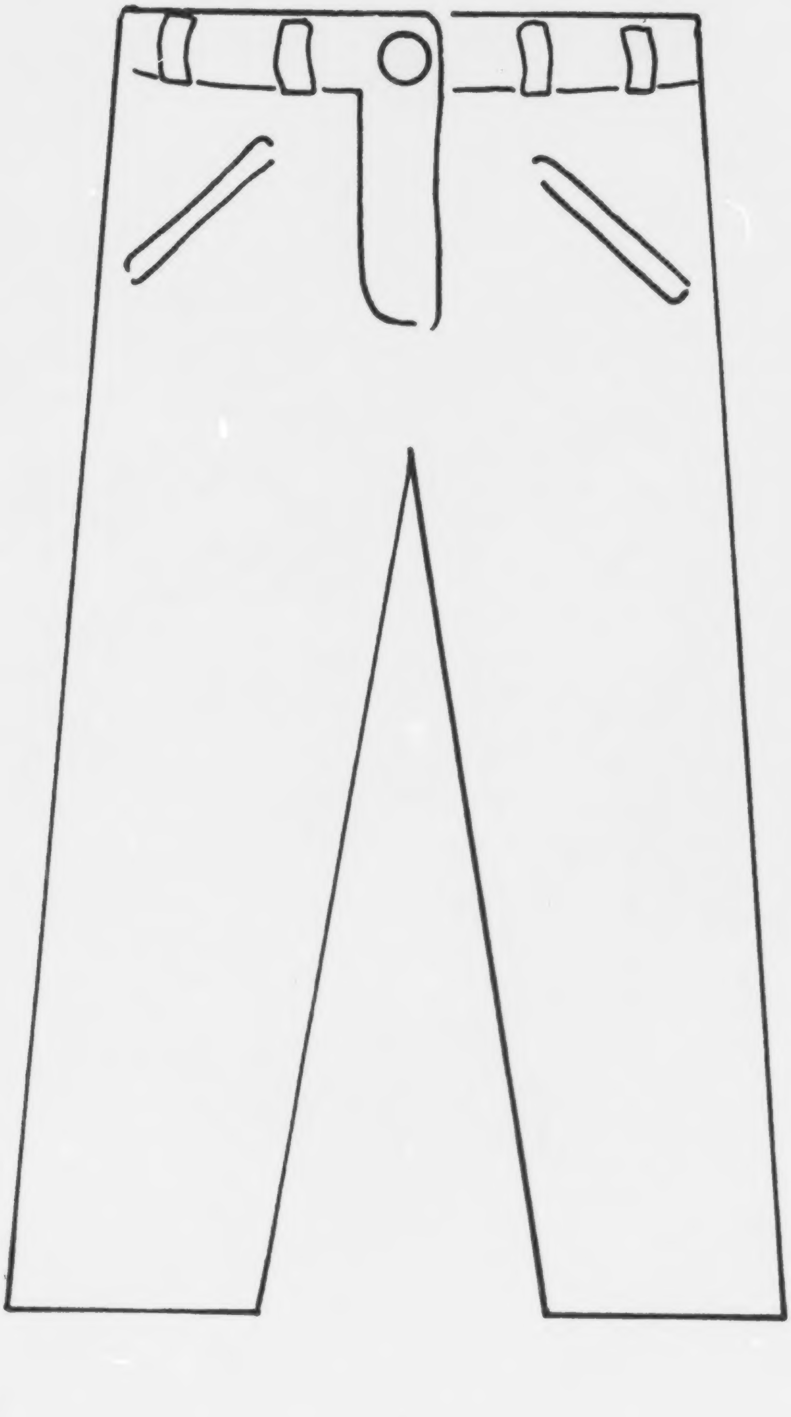
1. Explain to the students that they have been hired by a fashion design company to design a new item of clothing to be manufactured.
2. The item of clothing will be marketed for the population 13 to18 years old.
3. Display manufacturing patterns.

4. Allow students to select the pattern (item of clothing) they will design to be manufactured.
5. Allow students to design a prototype of the item of clothing to be manufactured.
6. Several factors should be considered: colorfulness, appeal to age group, ease of assembly, etc.
7. Students should use felt tip pens to design their prototypes.
8. Actual material and sewing notions are optional, but they will add to the chances of a prototype being selected to be manufactured.
9. When students have completed their prototypes, have the class select the prototype to be used in the actual assembly activity which follows.

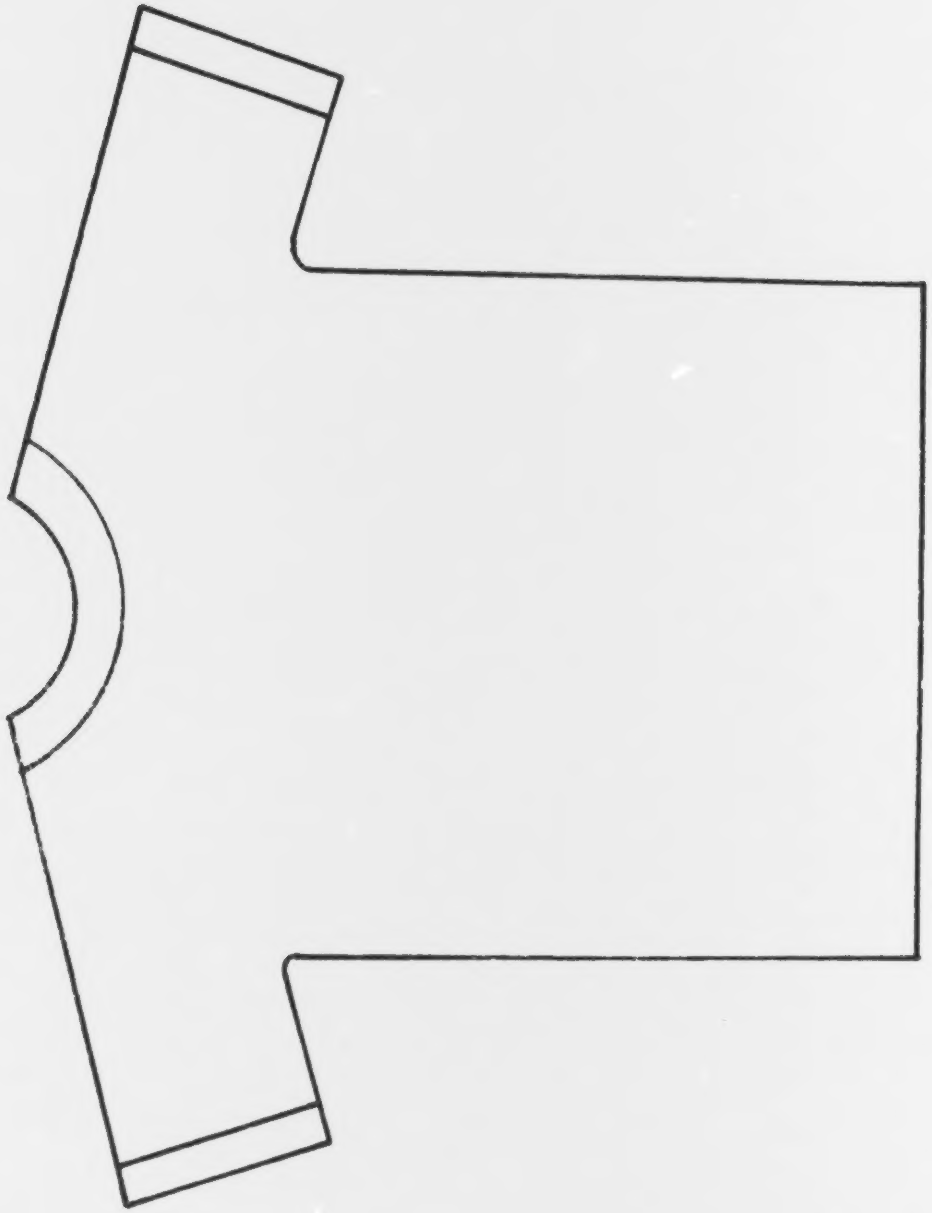
G. Follow-Up:

1. Variations of this activity could include having the students invent a product to be manufactured, or having students select a currently manufactured product and plan a means of improvement.
2. Discuss the advantages and disadvantages of careers which are classified in the scientists job family.
3. Discuss the personal qualifications and educational/training requirements of those who aspire to careers classified in the scientists job family.
4. Have students evaluate their suitability for employment in careers classified in the scientists job family.

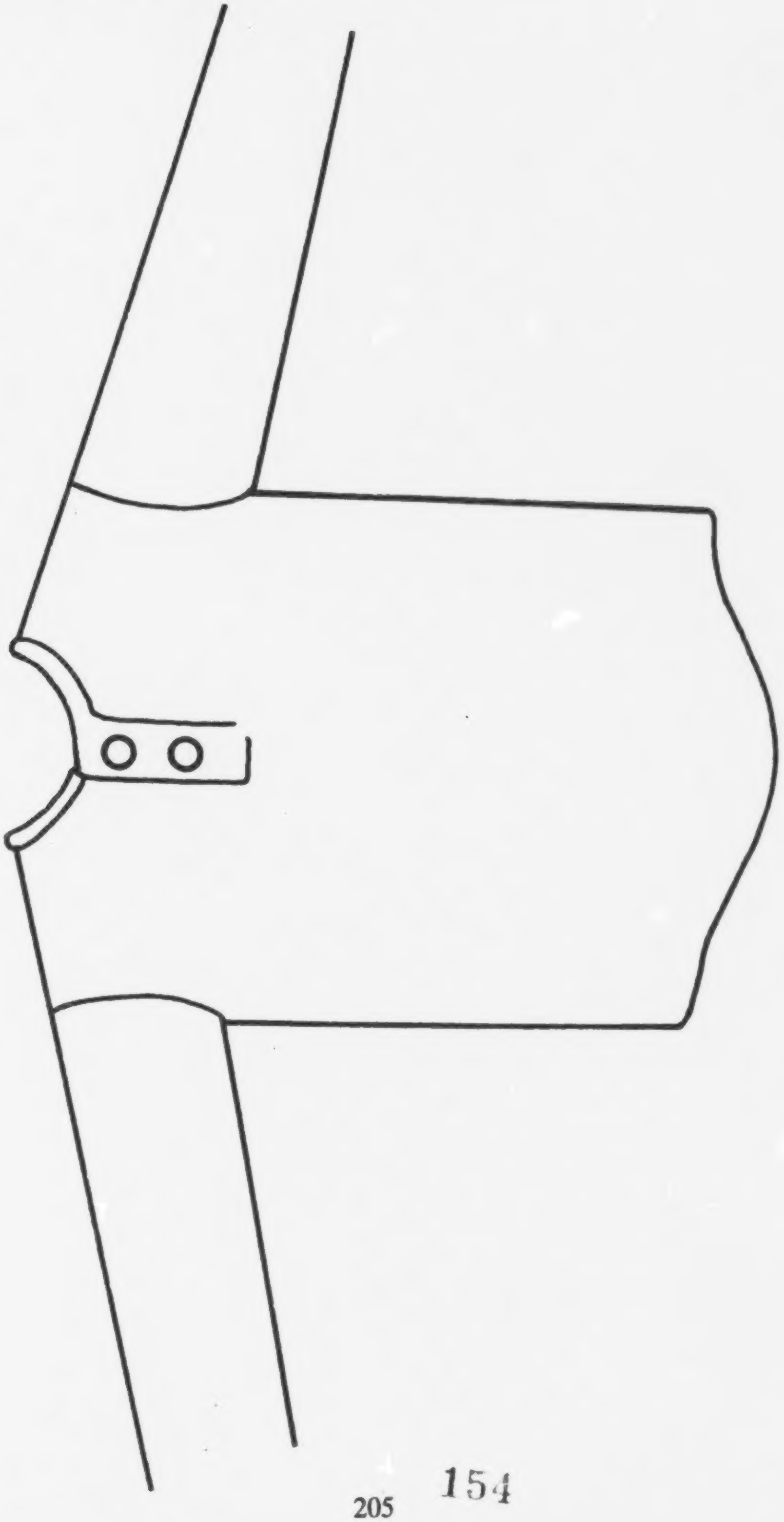
Manufacturing Pattern 1



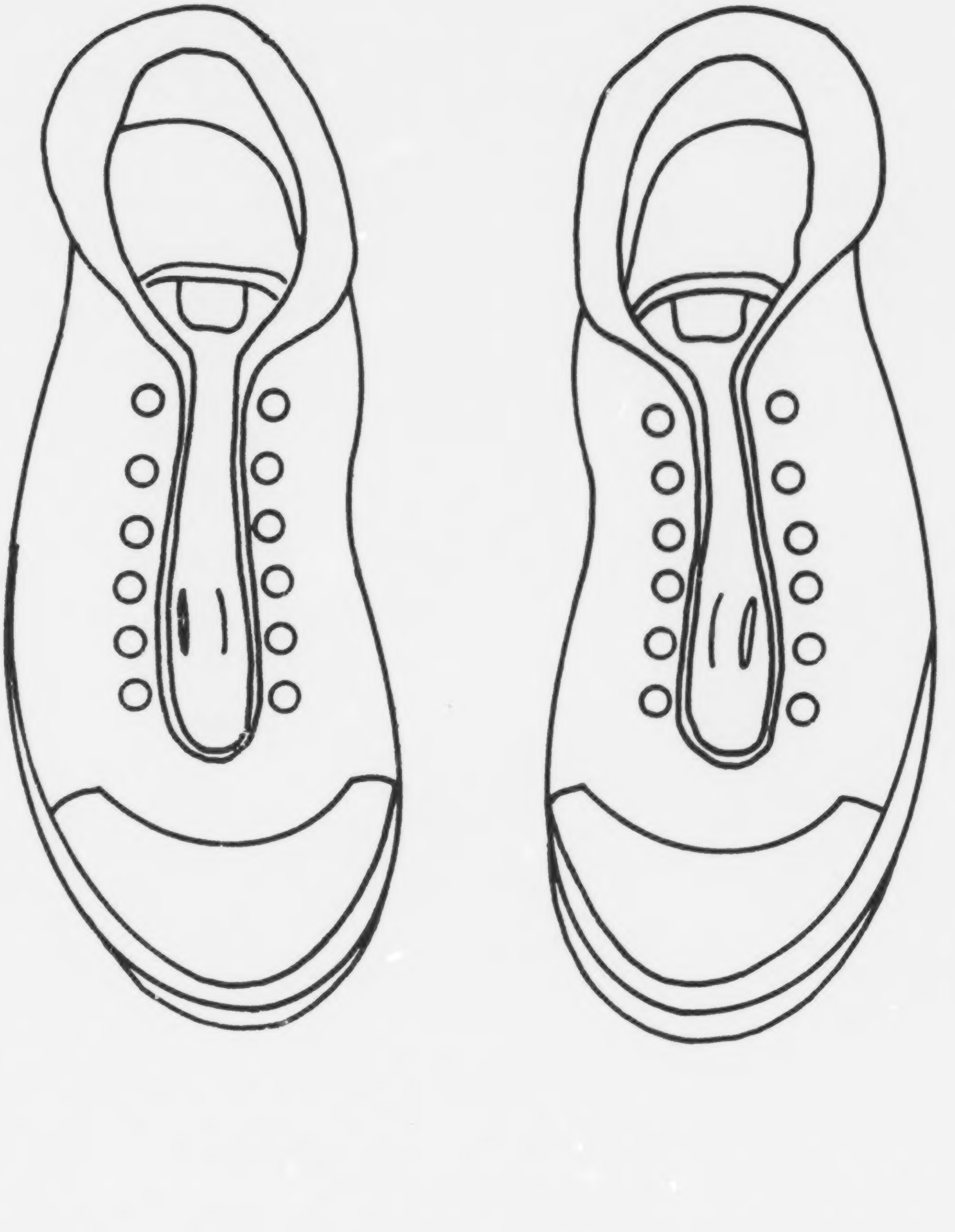
Manufacturing Pattern 2



Manufacturing Pattern 3



Manufacturing Pattern 4



Cluster: Manufacturing
Activity II: Planning the Manufacturing Process

Note: *This activity is a continuation of Activity I, Selecting a Prototype.*

A. **Purpose of Activity:** This activity simulates the nature of work associated with the management job family.

B. **Basic Skills Applications:** In completing this activity, students will apply the following fundamental academic principles:

- Demonstrate clear and logical thinking in support and development of a central idea.
- Perceive cause and effect relationships.
- Predict probable future actions and outcomes.
- Arrange events in sequential order.

C. **Approximate Time Required:** One class period.

D. **Materials Needed:**

Material	Source
Paper/pens	Provided by student
Large sheet poster board (1)	Provided by school
Marks-a-lots	Provided by school

E. **Before You Start:**

1. Discuss the importance to the manufacturing process of those careers classified in the management job family.
2. If possible, invite a resource person whose career is classified in the management job family to speak to your class.
3. Secure supplies.

F. **Step-by-Step Procedure:**

1. Explain to the students that those whose careers are classified in the management job family are responsible for planning and directing the work involved in the manufacturing process.
2. Explain that they are to plan how the prototype constructed in the previous activity could be manufactured on a large scale.
3. They are to plan the sequence of events needed to "manufacture" 100 of the items represented by the selected prototype.
4. The following occupations and actions should be considered:

   Manager: Coordinates activities of the assembly line.

Industrial Engineer: Plans equipment layout and workflow.

Quality-Control: Checks product for quality.

Safety Engineer: Develops and implements safety program to prevent or correct unsafe working conditions.

Pattern Maker: Takes product design and traces it on cardboard to make pattern.

Production Engineer: Develops work measurement procedures and directs time-and-motion study. Informs regulator of speed adjustment of conveyor belt.

Regulator(s): Moves dowels to adjust speed of conveyor belt.

Cutters: Cut out pieces.

Drafters: Trace around cardboard pattern to create product.

Gluers: Glue items used to decorate product to paper.

Designers: Put design on product using felt-tip pens.

5. The students should write the sequence of events necessary to accomplish the task.
6. When all students have completed their "manufacturing plans," have the class select the most informative and thorough one. The student whose plan is selected will act as the manager in the next activity.
7. Write the management plan on the poster board and post it in the classroom.

G. Follow-Up:

1. Discuss the advantages and disadvantages of careers classified in the management job family.
2. Discuss the personal qualifications and educational/training requirements of those who aspire to careers classified in the management job family.
3. Have students evaluate their suitability for employment in those careers classified in the management job family.

Cluster: Manufacturing
Activity III: Putting Your Plans into Action

Note: *This activity is a continuation of the previous two activities, Planning the Manufacturing Process and Selecting a Prototype.*

A. **Purpose of Activity:** This activity simulates the nature of work associated with the management, engineers, technicians, skilled workers, semi-skilled workers, and unskilled laborers job families.

B. **Basic Skills Applications:** In completing this activity, students will apply the following fundamental academic principles:

- Exhibit productive work habits and attitudes.
- Follow both written and oral directions.

C. **Approximate Time Required:** One class period.

D. **Materials Needed:**

Material	Source
Pattern previously selected for prototype	First activity: Selecting a prototype
Dowels	Hardware store or lumber yard
Butcher paper (for conveyor belt)	Grocery store or school cafeteria
Long table or tables (depending on the size of the class)	School
Glue	School
Scissors	School
Felt-tip pens	School
100 sheets of white paper (for product)	School
Cardboard (for patterns)	Grocery store
Other items used to decorate product	Volunteered
Prototype	First activity: Selecting a Prototype

E. **Before You Start:**

1. Discuss the importance of each of the job families classified in this cluster—management, scientists, engineers, unskilled laborers, semi-skilled workers, skilled workers, and technicians. Stress how they must work together to make possible the manufacture of a product.
2. If possible, arrange for a career study tour of a manufacturing plant.
3. Secure supplies.

F. **Step-by-Step Procedure:**

1. Assign or have students select the following occupations:

   Manager: Selected in previous activity. Coordinates activities of the assembly line.

Industrial Engineer: Plans equipment layout and workflow.

Production Engineer: Develops work measurement procedures and directs time-and-motion study. Informs regulator of speed adjustment of conveyor belt.

Regulator(s): Moves dowels to adjust speed of conveyor belt.

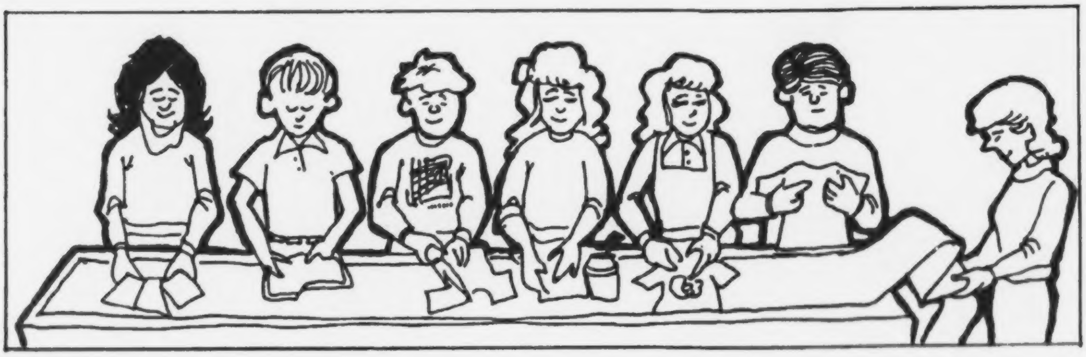
Cutter(s): Cuts out pieces.

Drafter(s): Traces around cardboard pattern to create product.

Gluer(s): Glues items used to decorate product to paper.

Designer(s): Puts design on product using felt-tip pens.

2. Attach butcher paper to dowels and place on table.
3. Have the students "manufacture" the selected clothing item using the directions outlined in the management plan (developed in Activity II).



G. Follow-Up:

1. After the demonstration of the manufacturing process, have the students answer the following questions:
    a. Why is an assembly line used for mass production of a product?
    b. Would you enjoy working on an assembly line?
    c. Describe any problems you encountered in your occupation.
    d. What special traits should a worker who works on an assembly line possess?
    e. What are the advantages of working on an assembly line?
2. Discuss the personal qualifications and educational/training requirements of those who aspire to careers classified in the manufacturing cluster.
3. Have students evaluate their suitability for employment in those careers classified in the manufacturing cluster.

Cluster: Marine Science
Activity I: The Marine Meteorologist

A. **Purpose of Activity:** This activity simulates the nature of work associated with the research job family.

B. **Basic Skills Applications:** In completing this activity, students will apply the following fundamental academic principles:

- Construct and interpret a chart.
- Use primary and secondary sources to gather information.
- Make generalizations from a series of assumptions.
- Use the composing process to plan and generate writing.
- Follow both oral and written directions.

C. **Approximate Time Required:** One class period.

D. **Materials Needed:**

Material	Source
Encyclopedias	Local school supply source
The Hurricane's Path	Included
Pencils/pens	Students
Rulers	Students

E. **Before You Start:**

1. Discuss the marine meteorologist's occupation.
2. Reproduce copies of The Hurricane's Path.
3. Prepare a transparency of The Hurricane's Path Key.
4. Secure encyclopedias.
5. Have students prepare a report on hurricanes.

F. **Step-by-Step Procedure:**

1. Discuss hurricanes and the marine meteorologist's role in tracking them.
2. Pass out The Hurricane's Path.
3. Assist students in completing the activity.
4. When students have completed the activity, show them the transparency of the key.

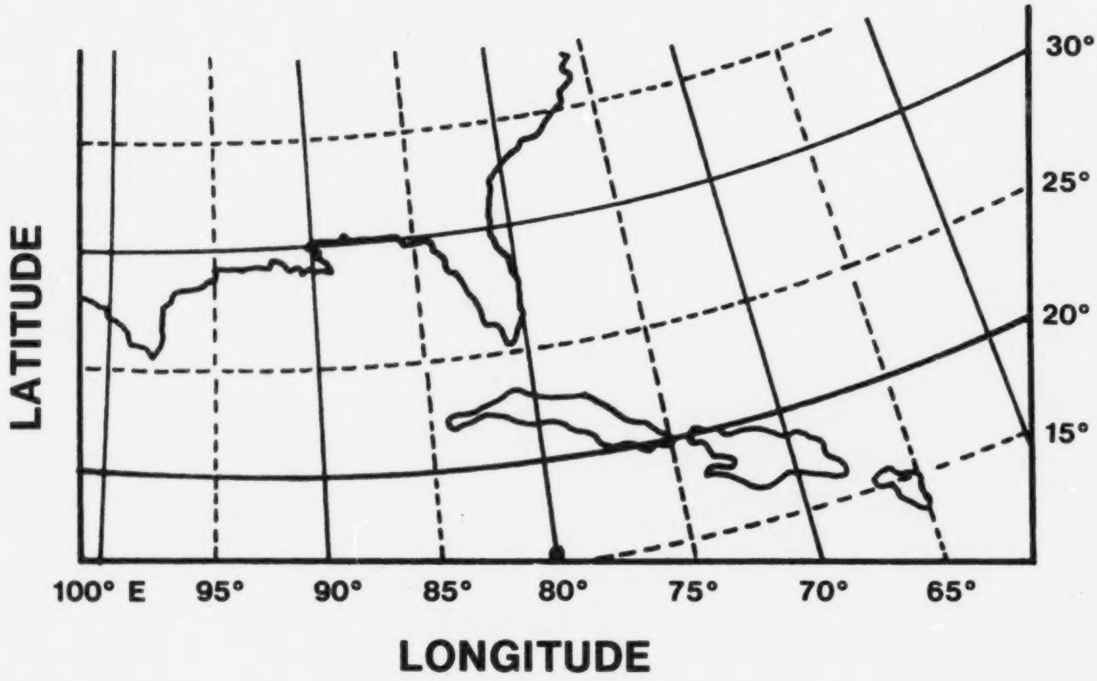
G. Follow-Up:

1. Discuss the marine meteorologist's role once the hurricane's projected path has been determined.
2. Discuss other careers classified in the marine research job family.
3. Discuss the advantages and disadvantages of the nature of work associated with this job family.
4. Discuss the personal qualifications and educational/training requirements of careers classified in the marine research job family.
5. Have students evaluate their suitability for employment in those careers associated with the marine research job family.

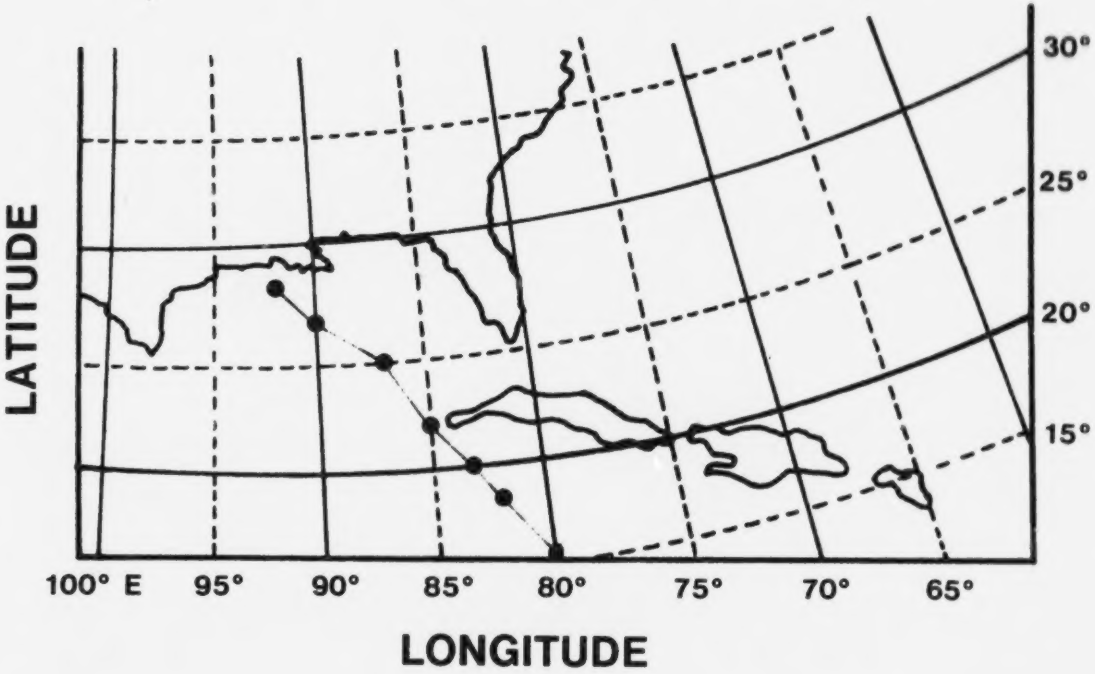
The Hurricane's Path

Congratulations! You have been hired as a marine meteorologist. You were just informed that a tropical storm in the Caribbean has been classified as a hurricane. Your job is to track the hurricane's path. The first one is done for you.

	Longitude	**Latitude**
1st day	80°	15°
2nd day	82°	18°
3rd day	83°	20°
4th day	85°	22°
5th day	87°	25°
6th day	90°	27°
7th day	92°	28°


30°
25°
20°
15°
LATITUDE
100° E
95°
90°
85°
80°
75°
70°
65°
LONGITUDE

The Hurricane's Path Key


30°
25°
20°
15°
LATITUDE
100° E
95°
90°
85°
80°
75°
70°
65°
LONGITUDE

Cluster: Marine Science
Activity II: Tying a Crappie Jig

A. **Purpose of Activity:** This activity simulates the nature of work associated with the fishing job family.

B. **Basic Skills Applications:** In completing this activity, students will apply the following fundamental academic principles:

- Follow both oral and written directions.
- Exhibit productive work habits and attitudes.

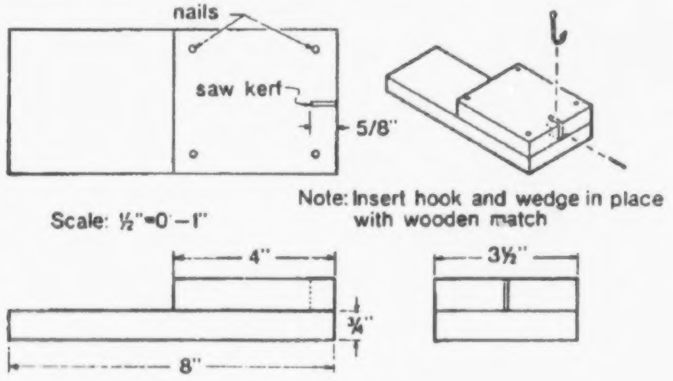
C. **Approximate Time Required:** One class period.

D. **Materials Needed:**

Material	Source
Fishing hooks, size 2/0, 1 per student	Local discount store
Split shot weights, 1 per student	Local discount store
Black thread, 8-in. per student	Local discount store
Wooden match, 1 per student	Local discount store
Long nose pliers, 3 per class	Vocational shop
Scissors, 6-in. to 7-in. blade, 3 per class	Vocational shop
"C" clamps, 4-in. or 6-in., 6 per class (optional)	Vocational shop
Hand rip saw, 10 to 12 point	Vocational shop
24 small nails	Vocational shop
Lumber, 1-in. x 4-in. x 6-ft	Vocational shop
Small bird feathers	Student supplied or feather dusters
Thin strips of colored plastic	(Notebook covers) School supply source
Tying jig plans	Included

E. **Before You Start:**

1. Construct at least 6 tying jigs to hold the fish hooks safely.



2. Obtain the necessary tools and materials for the activity.
3. Obtain informational brochures from the Texas Fish and Game Commission, 4200 Smith School Road, Austin, Texas 78744 as an enrichment activity.
4. Discuss the careers classified in the fishing job family.
5. If possible, obtain a crappie jig to use as a prototype.

F. Step-by-Step Procedure:

1. Set up the tying jig work stations around the room so that the class has equal access to them. If the optional "C" clamps are used, clamp jigs in place. Otherwise, students hold them when in use.
2. Depending on the number of tools, jigs, materials available, and the class size, divide the class into pairs or small groups.
3. Discuss the potential safety hazard of working with fish hooks. Explain how painful an injury can be if a fish hook barb enters the skin—primarily because it must be pushed through, rather than pulled back the way it entered.
4. Distribute the fish hooks, thread, and split shot sinkers to each student.
5. Explain to the class that by working in pairs, one person can hold the feathers/plastic strips in place while the other person ties them to the shaft of the hook. Suggest that the feathers/plastic strips should cover as much of the hook as possible.
6. Further explain that after the feathers/plastic strips have been tied to the hook, remove the hook from the jig and clamp the split shot around the hook shaft as close to the eye as possible.
7. After everyone in the class has made his/her crappie jig, organize a contest and let the students choose which jig they think would catch the most fish.
8. Conclude the activity by declaring the maker of the winning jig "the world's greatest fisher."

Note: *Completed crappie jigs should be transported only after they have been wrapped carefully in several sheets of paper.*

G. Follow-Up:

1. If possible, allow students to try their crappie jigs.
2. Discuss the advantages and disadvantages of the nature of work associated with the fishing job family.
3. Discuss the personal qualifications and educational/training requirements of careers classified in this job family.
4. Have students evaluate their suitability for employment in those careers classified in the fishing job family.

Cluster: Marine Science
Activity III: Scuba Talk

A. **Purpose of Activity:** This activity simulates the nature of work associated with the surface and on-shore support job family.

B. **Basic Skills Applications:** In completing this activity, students will apply the following fundamental academic principles:

- Use primary and secondary sources to gather information.
- Use the composing process to plan and generate writing.
- Follow both oral and written directions.
- Utilize nonverbal communication.
- Exhibit productive work habits and attitudes.

C. **Approximate Time Required:** One class period.

D. **Materials Needed:**

Material	Source
Scuba Talk Chart	Included
Drinking straws, 2 per student	School cafeteria
Large, spring-type clothespins 1 per student	Local discount store
Encyclopedias	Library

E. **Before You Start:**

1. Invite a scuba instructor from a local college or an owner of a scuba shop to speak to your class.
2. Secure materials.
3. Reproduce copies of Scuba Talk.
4. Explain that while this job family covers land-based support facilities, underwater technicians and workers are used in both dry docks and shipyards in maintenance and repair activities.
5. Further explain some of the occupational hazards of working underwater around vessels:
   - difficult viewing conditions
   - restricted breathing conditions
   - falling objects from ships or docks
   - cold, uncomfortable environment
   - malfunctioning oxygen or hoist equipment

6. Have students prepare a report on scuba diving.

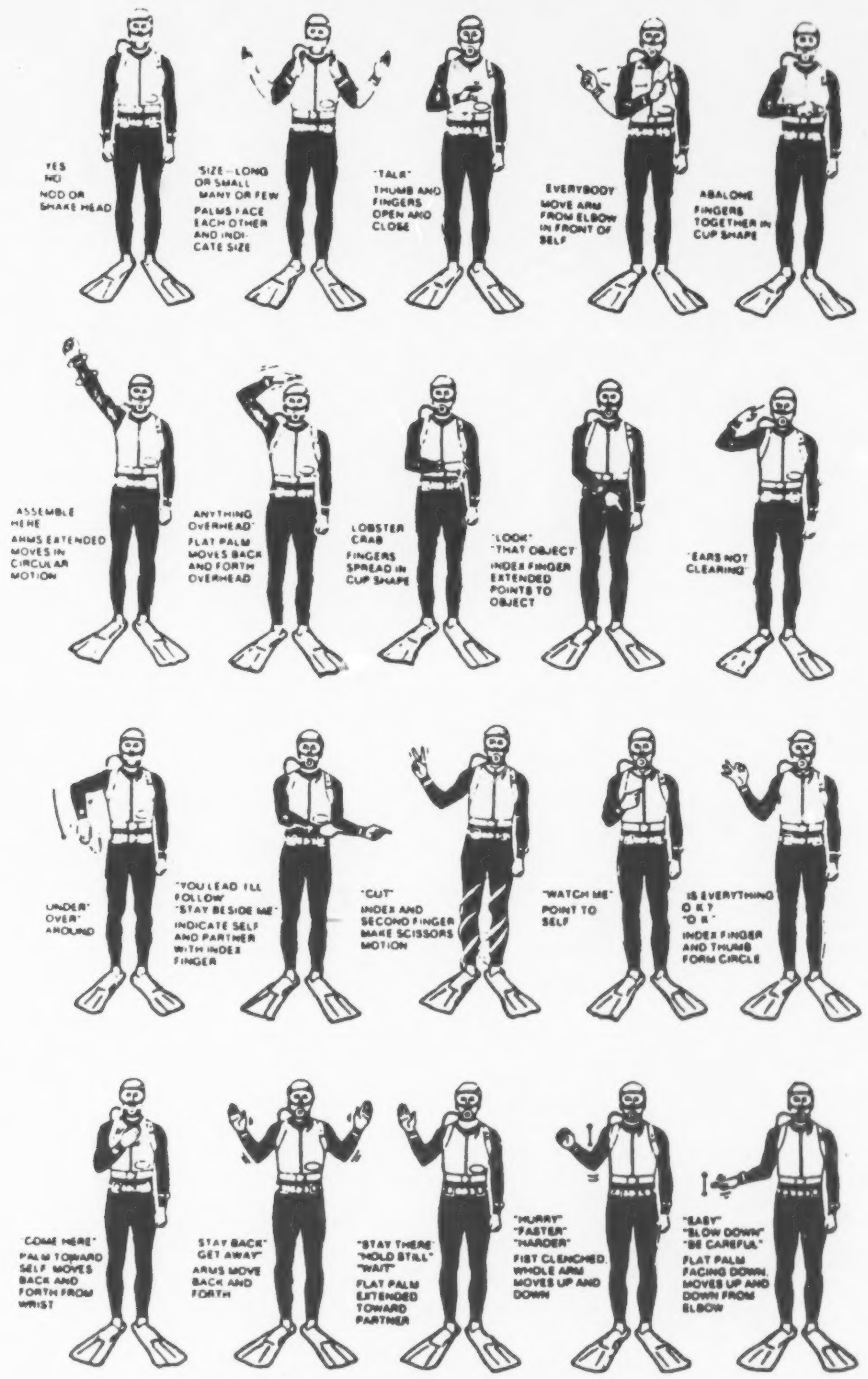
F. Step-by-Step Procedure:

1. Distribute copies of the Scuba Talk Chart to each student. Instruct each student to prepare a short message in scuba talk.
2. Distribute 2 straws and a clothespin to each student. Explain that the straws will be used to simulate the mouthpiece of a snorkel breathing system. The clothespin is used to preclude nose breathing while freeing the hands to make scuba talk.
3. Divide the class into pairs to practice breathing through the straws while transmitting or receiving the scuba talk messages.
4. If desired, allow student volunteers to transmit their message to the class.
5. Conclude the activity by having the class vote on which "underwater worker" could transmit a 3- to 5-symbol message most quickly without using his/her hands to hold the straws.

G. Follow-Up:

1. Discuss the advantages and disadvantages of the nature of work associated with the surface and on-shore support job family.
2. Discuss the personal qualifications and educational/training requirements of careers classified in this job family.
3. Have students evaluate their suitability for employment in those careers classified in the surface and on-shore support job family.

Scuba Talk



YES
NO

NOD OR SHAKE HEAD

"SIZE—LONG OR SMALL
MANY OR FEW

PALMS FACE EACH OTHER AND INDICATE SIZE

"TALK"

THUMB AND FINGERS OPEN AND CLOSE

EVERYBODY

MOVE ARM FROM ELBOW IN FRONT OF SELF

ABALONE

FINGERS TOGETHER IN CUP SHAPE

ASSEMBLE HERE

ARMS EXTENDED MOVES IN CIRCULAR MOTION

ANYTHING OVERHEAD"

FLAT PALM MOVES BACK AND FORTH OVERHEAD

LOBSTER
CRAB

FINGERS SPREAD IN CUP SHAPE

"LOOK"
"THAT OBJECT"

INDEX FINGER EXTENDED POINTS TO OBJECT

"EARS NOT CLEARING"

UNDER"
OVER"
AROUND

"YOU LEAD ILL FOLLOW
"STAY BESIDE ME"

INDICATE SELF AND PARTNER WITH INDEX FINGER

"CUT"

INDEX AND SECOND FINGER MAKE SCISSORS MOTION

"WATCH ME"

POINT TO SELF

IS EVERYTHING O K?
"O K"

INDEX FINGER AND THUMB FORM CIRCLE

"COME HERE"

PALM TOWARD SELF MOVES BACK AND FORTH FROM WRIST

STAY BACK"
GET AWAY"

ARMS MOVE BACK AND FORTH

"STAY THERE"
"HOLD STILL"
"WAIT"

FLAT PALM EXTENDED TOWARD PARTNER

"HURRY"
"FASTER"
"HARDER"

FIST CLENCHED, WHOLE ARM MOVES UP AND DOWN

"EASY"
"SLOW DOWN"
"BE CAREFUL"

FLAT PALM FACING DOWN, MOVES UP AND DOWN FROM ELBOW

Cluster: Marketing and Distribution
Activity I: Consumer Research

A. **Purpose of Activity:** This activity Simulates the nature of work associated with the marketing research and analysis job family.

B. **Basic Skills Applications:** In completing this activity, students will apply the following fundamental academic principles:

- Use the probability of statistics to collect and interpret data.
- Develop skill in conflict diagnosis and management in the group process.
- Follow both oral and written directions.
- Exhibit productive work habits and attitudes.

C. **Approximate Time Required:** One class period.

D. **Materials Needed:**

Material	Source
Calculators	School business department or students
Market Research Report	Included

E. **Before You Start:**

1. Secure calculators.
2. Reproduce copies of the Market Research Report.
3. Coordinate the out-of-class portion of this activity with faculty members and administrator.

Note: *Each group should visit a different classroom to preclude double counting.*

4. If possible, invite a market research analyst to speak to your class.

F. **Step-by-Step Procedure:**

1. Explain the purpose of market research.
2. Explain to the class that this consumer research activity will seek to identify which color of pen is purchased most by students at the school. Further explain that the research will be performed by visiting designated classes within the school in small groups (research teams). During these visits, the team leader will explain the purpose of the research to the class. The remaining team members will count and record the number and color of pens being used by the class. The colors to be counted for research purposes are: blue, green, purple, red, and yellow. All other colors will be discounted. ("Color" means the color of the pen itself, not the color of the ink.)

3. Divide the class into research teams of five students each. Have each team elect a leader who will also function as a recorder.
4. Distribute a Market Research Report to each research team.
5. Have the members of each team record their names in the appropriate blank.
6. When directed, each research team should visit a designated classroom.
7. Arriving at the classroom, the team leader/recorder introduces the research team to the teacher and requests permission to make a class announcement.
8. With teacher approval, the team leader describes the purpose of the consumer research project and requests that class members raise their pens over their heads when the color announced matches the color of the pen(s) they are using or possess.
9. The team leader proceeds to announce the colors one at a time while the team members make a count of the raised pens. When team members agree on the number counted, the count is recorded in the appropriate blanks on the Market Research Report.
10. When the count is completed and recorded for all colors being researched, the research team thanks the teacher and class, and team members immediately return to their classroom.
11. Each research team should determine the rank order of the results of their research.

Example:

Color	Number	Rank Order
Blue	15	1
Green	1	5
Purple	3	3
Red	2	4
Yellow	5	2

12. When each research team has completed this task, have the class determine the rank order from all groups.

Example:

Color	Number	Rank Order
Blue	146	1
Green	20	4
Purple	92	2
Red	30	3
Yellow	4	5

13. State the results of the research. Stress that the research conducted was a **sampling** of the total school population.

G. Follow-Up:

1. Discuss the importance of accurate consumer/market research in assisting the manufacturer in producing products which will sell.
2. Discuss the advantages and disadvantages of the nature of work associated with the marketing research and analysis job family.
3. Discuss the personal qualifications and educational/training requirements of occupations classified in this job family.
4. Have students evaluate their suitability for employment in those careers classified in the marketing research and analysis job family.

Market Research Report

Research Team Leader/Recorder: ________________________________

Research Team Members: ________________________________

____

____

____

____

Contracting Agency: Jr. High Bookstores, Inc.
Research Company: C.I. Company
Product Analyzed: Pens

Date of Research: ________________________________
Activity Date

Research Site: ________________________________
School, Class, Teacher, Hour

Sample Population: ________________________________
Total Number of Students Sampled

Data Collected

Pens	Number Counted	Rank Order
Blue		
Green		
Purple		
Red		
Yellow		

Cluster: Marketing and Distribution

Cross Reference: **Fine Arts and Humanities Cluster**

Activity II: Convincing Others

A. **Purpose of Activity:** This activity simulates the nature of work associated with the sales promotion and training job family.

B. **Basic Skills Applications:** In completing this activity, students will apply the following fundamental academic principles:

- Use figurative language.
- Use contrast, proportion, and sensory observation skills.
- Explain significance of placement.
- Use persuasive devices.
- Choose appropriate words to convey intended meaning.

C. **Approximate Time Required:** One to three class periods.

D. **Materials Needed:**

Material	Source
Construction paper	School supply source
Aluminum foil (optional)	Grocery store or school cafeteria
Felt-tip markers	School supply source
Glue	School supply source
Scissors	School supply source
VCR equipment (optional)	School supply source
Billboard	Included

E. **Before You Start:**

1. Secure supplies and equipment in Section D.
2. Reproduce copies of the billboard.
3. If possible, invite a resource person whose career would be classified in the sales promotion and training job family to speak to your class.
4. Have students describe the purposes of advertising and sales promotion.
5. If possible, allow students to review commercials and/or advertisements. Have them discuss the qualities of good advertising.

F. Step-by-Step Procedure:

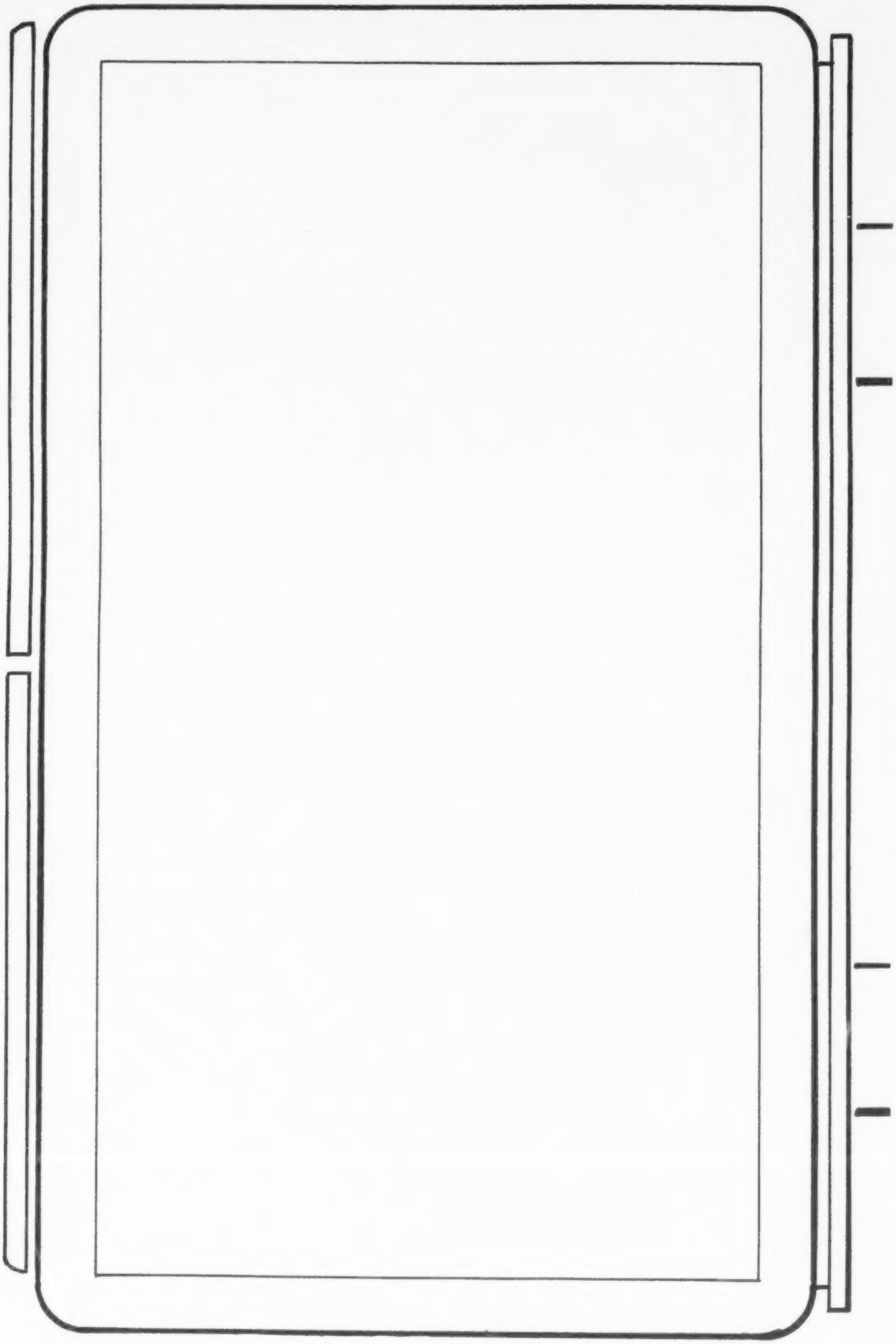
1. Inform students that they have been hired by an advertising agency to propose a new advertising campaign for a new brand of chips (or candy, gum, etc.).
2. They are to decide the shape, color, and texture of the chips.

3. Using construction paper, felt-tip markers, and aluminum foil (if desired), they are to design the package for the chips.
4. Then, using the chips they have invented, the students should be asked to compose a magazine, radio, and/or TV commercial.
5. Students may assist each other in producing the commercials.
6. If possible, record the radio and TV commercials by using a VCR or cassette player.
7. Have the creator of each ad campaign describe it briefly to the class. Then let the class vote on the best campaign.
8. Using the winner's ideas, have each student design a billboard.
9. Post the Completed billboard designs.
10. Replay the radio and/or TV commercials to the class.

G. Follow-Up:

1. Discuss the advantages and disadvantages of the nature of work associated with the sales promotion and training job family.
2. Discuss the personal qualifications and educational/training requirements of careers classified in this job family.
3. Have students evaluate their suitability for employment in those careers classified in the sales promotion and training job family.

BILLBOARD



Cluster: Marketing and Distribution

Cross Reference: **Manufacturing Cluster**

Activity III: Selling The Art of Convincing Others

A. **Purpose of Activity:** This activity simulates the nature of work associated with the selling, sales promotion and training, purchasing, marketing management, related business services, and physical distribution job families.

B. **Basic Skills Applications:** In completing this activity, students will apply the following fundamental academic principles:

- Find appropriate units of measure.
- Solve problems involving measures.
- Use the operations of addition, subtraction, multiplication, and division in problem situations.
- Use the fundamental counting principle.
- Use persuasive devices.
- Follow both oral and written directions.
- Exhibit productive work habits and attitudes.

C. **Approximate Time Required:** Two to three class periods.

D. **Materials Needed:**

Material	Source
No-Cook Fudge Recipe	Included
Ingredients for fudge (amount determined by class)	Grocery store
Cooking utensils	Cafeteria or home economics department
Posters	School supply source
Felt-tip pens	School supply source
Packaging	Determined by class
Sales slips	Included

E. **Before You Start:**

1. Secure administrative approval to conduct a money-making project.
2. Either you or the class determine the amount of fudge to be sold. This will determine the amount of ingredients to purchase.

   Note: *The recipe makes approximately 24 servings.*

3. Consider when to sell the fudge (during lunch, before or after school, during pep rallies, on a Saturday, etc.).

4. Have the students determine the method of packaging (Saran Wrap, wax paper, tissue paper, aluminum foil, etc.).
5. Reproduce copies of the sales slips and the No-Cook Fudge recipe.

F. Step-by-Step Procedure:

1. Inform students that they will be performing the work tasks of careers classified in the following job families: selling, marketing management, purchasing, sales promotion, physical distribution, and related business services.
2. If possible, allow students to accompany you to purchase the ingredients. Or, secure prices of the ingredients and allow students to determine the total cost of producing the product (fudge).
3. Have students determine the total cost of the packaging material for the fudge.
4. Have students add the cost of the ingredients to the cost of the packaging materials. This will give them the total cost of production.
5. Have the students divide the total number of units (servings of fudge) into the total cost of production. This will give them the total cost of production and packaging per serving.
6. Either you or the class should determine the profit margin to be gained through selling the product. This profit margin will be added to the total cost of production and packaging per serving to arrive at the selling price of each piece of fudge.
7. Divide the class into groups. The number of groups selected will be determined by the amount of fudge to be sold.
8. Give one copy of the No-Cook Fudge Recipe to each group.
9. Allow students to make the fudge (after washing their hands).

Note: *Cream cheese needs to be at room temperature.*

10. Store fudge in the cafeteria refrigerator overnight.
11. During the next class, allow each group to package (wrap) their fudge (after washing their hands).
12. Have students design posters advertising the fudge and post them.
13. Allow students to sell fudge. A sales slip must be completed each time a sale is made.
14. Students should return money to you. It should be counted to determine if the cost of production was recovered and if the projected profit margin was achieved.

G. Follow-Up:

1. Evaluate the activity and discuss the various careers held.
2. Discuss the advantages and disadvantages of the nature of work associated with the Marketing and Distribution Cluster.
3. Have students evaluate their suitability for employment in the careers classified in the Marketing and Distribution Cluster.

SALES SLIP

Name ______________________ Date ____________ 19 __

Address ______________________________________

Sold by	Cash	C.O.D.	Charge	On Acct.	Mdse Retd.	Paid Out

Quan.		Description	Amount	

Keep this slip for reference

No-Cook Fudge

1 8-oz. pkg. cream cheese
6 cups confectioners' sugar
dash of salt
1 tsp. vanilla
½ cup cocoa
butter

Lightly butter a 9-in. square pan. Have cream cheese at room temperature. Place cheese in a large bowl and work with a spoon until smooth and soft. Slowly stir in confectioners' sugar, salt, and cocoa. Add vanilla. Press into a pan and chill. This makes 24 servings.

Cut along broken line

No-Cook Fudge

1 8-oz. pkg. cream cheese
6 cups confectioners' sugar
dash of salt
1 tsp. vanilla
½ cup cocoa
butter

Lightly butter a 9-in. square pan. Have cream cheese at room temperature. Place cheese in a large bowl and work with a spoon until smooth and soft. Slowly stir in confectioners' sugar, salt, and cocoa. Add vanilla. Press into a pan and chill. This makes 24 servings.

Cluster: Personal Service
Activity I: Custodial Service

A. **Purpose of Activity:** This activity simulates the nature of work associated with the domestic services job family.

B. **Basic Skills Applications:** In completing this activity, students will apply the following fundamental academic principles:

- Follow both oral and written directions.
- Exhibit productive work habits and attitudes.

C. **Approximate Time Required:** One class period.

D. **Materials Needed:**

Material	Source
Custodial supplies	School custodian
Work clothes or aprons (optional)	Provided by student

E. **Before You Start:**

1. Seek approval from school principal. Coordinate this activity with custodian.
2. Identify areas on the school campus which require custodial/maintenance services. (Consider teachers' lounge or work room, counselors' waiting room or offices, storage areas, students' restrooms, halls, locker areas, cafeteria.)
3. Identify specific tasks or work to be performed.
4. Secure custodial supplies.
5. Inform the class of the activity a day in advance and encourage them to bring work clothes or aprons.
6. Invite your school custodian to speak to your class concerning the nature of work in those careers classified in the domestic services job family.
7. Write the specific clean-up tasks to be performed on the chalkboard.

F. **Step-by-Step Procedure:**

1. Through class discussion, explain that this job family includes commercial cleaning companies. Identify local agencies, and call attention to some of the following job characteristics:
   - Dependable attendance on the job
   - Bonded employees for theft or physical damage
   - Hard physical work
   - Following directions closely

    - Working with strong chemicals
    - Primarily night work, inside

2. Point out the importance of this kind of work to overall business/industry performance and personal satisfaction.
3. Call attention to the specific tasks listed on the chalkboard. Let the class determine how many students are necessary for each task and divide them into cleaning teams accordingly.
4. With the assistance of the school custodian(s), provide the cleaning teams with the necessary supplies and specific instructions to accomplish the clean-up tasks.
5. After the assignments are made, you and custodian(s) should move from team to team supervising the work.
6. Terminate the activity in sufficient time to permit return of all materials.

G. Follow-Up:

1. Discuss the advantages and disadvantages of the nature of work associated with the domestic services job family.
2. Discuss the personal qualifications and educational/training requirements of careers classified in this job family.
3. Have students evaluate their suitability for employment in the domestic services job family.

Cluster: Personal Service
Activity II: Manicure

A. **Purpose of Activity:** This activity simulates the nature of work associated with the barbering, cosmetology, and related services job family.

B. **Basic Skills Applications:** In completing this activity, students will apply the following fundamental academic principles:

- Follow both oral and written directions.
- Exhibit productive work habits and attitudes.

C. **Approximate Time Required:** One class period.

D. **Materials Needed:**

Material	Source
Small plastic margarine tubs, 1 per 2 students	Provided by students
Emery boards, 1 per 2 students (This item offered as a free advertisement occasionally by local dry cleaners.)	Local department store
Orangewood sticks, 1 per 2 students (Sharpened ice cream sticks or tongue depressors may be used also.)	Local department store or school nurse
Nail clippers, 3 to 4 per class	Local department store
Cotton balls, 2 per student	Local department store or school nurse
Liquid dishwashing detergent, 1 bottle per class	Local department store or school cafeteria
Hand lotion, 1 bottle per class	Local department store
Small hand towels or paper towels, 1 per 2 students	Local department store or school supply
Small plastic sandwich bags, 1 per 2 students	Local grocery store or school cafeteria
Source of water for finger bath	School supplied
Manicure Table Display	Included

E. **Before You Start:**

1. Invite a vocational cosmetology teacher or a local beauty operator to assist students in this activity.
2. Describe the activity to the students the day before and solicit their support. (In some schools, students have brought in all materials necessary, including hair dryers and make-up mirrors.)
3. Arrange for source of water if the room doesn't have it, and for all the other materials listed in Section D.
4. Conduct a brief discussion of the personal characteristics needed to succeed in this work. Also discuss the safety factor in sticking instruments beneath a person's fingernails.

F. Step-by-Step Procedure:

1. Allow the class to pair off and arrange their work stations according to the attached illustration.
2. Demonstrate proper procedures to the class.
3 If desired, an appointment clerk (student leader) could be identified to help the teacher manage the beauty salon (classroom).
4. Allow the students to mix the finger bath (1/4 teaspoon detergent to a small margarine tub of water is suggested).
5. Let half of the class give their selected classmate a manicure (allow 15 minutes); then let "patrons" and "manicurists" switch roles.
6. Monitor students.
7. Conclude the activity by letting students clean the classroom.

G. Follow-Up:

1. Enrich the activity by allowing students who desire to do so to perform any of the following additional services for one another:
    a. Hair styling—Comb, style, etc. (Use only the patron's personal comb on his/her own hair.)
    b. Makeup—Apply lipstick, rouge, face powder, etc. (Allow time to wash up.)
    c. Fingernails—Apply different types of nail polish. (Allow time to completely remove as desired.)
2. Discuss the advantages and disadvantages of the nature of work associated with the barbering, cosmetology, and related services job family.
3. Discuss the personal qualifications and educational/training requirements for careers classified in this job family.
4. Have students evaluate their suitability for employment in the barbering, cosmetology, and related services job family.

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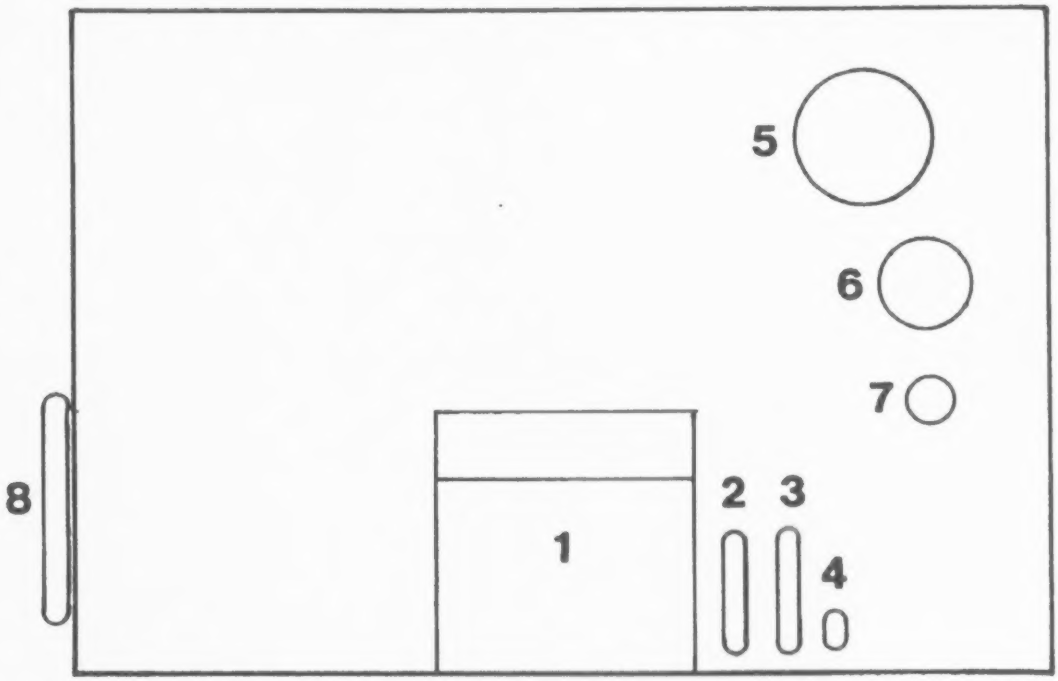
Manicure Table Display



1. Towel with one end folded	5. Finger bath
2. Orangewood stick	6. Cotton balls
3. Emery board	7. Hand lotion
4. Nail clipper	8. Plastic baggie for trash

Cluster: Personal Service
Activity III: Serving Others

A. **Purpose of Activity:** This activity simulates the nature of work associated with the food and beverage preparation services job family.

B. **Basic Skills Applications:** In completing this activity, students will apply the following fundamental academic principles:

- Follow both oral and written directions.
- Exhibit productive work habits and attitudes.

C. **Approximate Time Required:** One class period.

D. **Materials Needed:**

Material	Source
Baggies (2 per student)	Grocery store
Items of food and drinks	Selected and provided by students

E. **Before You Start:**

1. Select a date, time, and place to conduct this activity.

   Note: *This is an excellent means of thanking the school personnel who have cooperated with you and your class during the year, while allowing students to experience the work tasks of careers classified in the food and beverage preparation job family.*

2. Inform the class they will be hosting an "Appreciation Day."
3. They are to plan the menu. (Something simple, such as sandwiches, chips, and drinks.)
4. You and your students may bring some of the food items from home.
5. Secure needed items.
6. Inform school personnel of the event.
7. Discuss with students the various careers classified in the food and beverage preparation job family.
8. If possible, allow students to participate in a career study tour of a local restaurant or fast-food chain.

F. **Step-by-Step Procedure:**

1. Assign students different careers classified in this job family.
2. Prepare center where food preparation is to take place.
3. Allow students to prepare food, using baggies for their hands.

4. Allow students to serve food.
5. Conclude activity in time for students to clean preparation and serving areas.

G. Follow-Up:

1. Discuss the advantages and disadvantages of the nature of work associated with the food and beverage preparation job family.
2. Discuss the personal qualifications and educational/training requirements of careers classified in this job family.
3. Have students indicate their suitability for employment in those careers classified in the food and beverage preparation job family.

Cluster: Public Services
Activity I: The FBI

A. **Purpose of Activity:** This activity simulates the nature of work associated with the protective services job family.

B. **Basic Skills Applications:** In completing this activity, students will apply the following fundamental academic principles:

- Use primary and secondary sources to gather information.
- Use the composing process to plan and generate writing.
- Follow both oral and written directions.
- Exhibit productive work habits and attitudes.

C. **Approximate Time Required:** One class period.

D. **Materials Needed:**

Material	**Source**
Fingerprint Card	Included
Ink pads	Office supply store
Encyclopedias	Library

E. **Before You Start:**

1. Reproduce the Fingerprint Cards (2 for each student).
2. Secure ink pads.
3. If possible, invite a resource person whose career would be classified in the protective services job family to speak to your class.
4. Have students prepare a report on the Federal Bureau of Investigation.
5. Emphasize the use of fingerprints as a means of identification.

F. **Step-by-Step Procedure:**

1. Have students fingerprint each other.
2. When students have completed this portion of the activity, have them repeat their fingerprints on a separate Fingerprint Card (this time leaving name blank).
3. Post Fingerprint Cards (which include names).
4. Pass out at random Fingerprint Cards (with no names).
5. Have students attempt to match the cards.

G. Follow-Up:

1. Visit a local police department.
2. Discuss the advantages and disadvantages of the nature of work associated with the protective services job family.
3. Discuss the personal qualifications and educational/training requirements of careers classified in this job family.
4. Have students evaluate their suitability for employment in those careers classified in the protective services job family.

FINGERPRINT CARD

Name ______________________________ School ____________________

Age __________ Sex __________

RIGHT HAND

1. Thumb	2. Index finger	3. Middle finger	4. Ring finger	5. Little finger
LEFT HAND				
6. Thumb	7. Index finger	8. Middle finger	9. Ring finger	10. Little finger

Cluster: Public Services
Activity II: It's Their Turn!

A. **Purpose of Activity:** This activity simulates the nature of work associated with the education job family.

B. **Basic Skills Applications:** In completing this activity, students will apply the following fundamental academic principles:

- Use persuasive devices.
- Demonstrate clear and logical thinking in support and development of a central idea.
- Perceive cause and effect relationships.
- Arrange events in sequential order.
- Predict probable future outcomes and actions.
- Exhibit productive work habits and attitudes.
- Follow both oral and written directions.

C. **Approximate Time Required:** Two class periods.

D. **Materials Needed:**

Material	Source
Notebook paper and pencils	Provided by student
Chalkboard and A/V equipment	Provided by school
Lesson plan (blank)	Provided by school

E. **Before You Start:**

1. Go over the steps necessary for a teacher to make a presentation to the class.
2. Reproduce copies of a blank lesson plan for use by your students.
3. Have the class generate topics for lesson presentations 3 to 5 minutes in length, Dual teaching is allowed. Students could present a lesson on a career, basic skills, etc.
4. Give a short demonstration of the type of presentation desired.
5. Provide necessary materials and equipment.

F. **Step-by-Step Procedure:**

1. Allow individuals or small groups of students time to develop lesson plans. This could be a homework assignment from the previous day.
2. Control the order in which presentations are made, explaining that educators work under supervision and must be able to react quickly in instructional situations.

3. When directed, each individual or group makes his/her presentation. Presentations should be limited to 3 to 5 minutes, can be humorous or serious, and must include at least one evaluation question of what was taught and learned.
4. Students observing the presentations should be encouraged to clap or comment favorably on each presentation.
5. The activity is concluded by students turning in their lesson plans for teacher review. Group lesson plans should generally be more complete.

G. Follow-Up:

1. Discuss the advantages and disadvantages of the nature of work associated with the education job family.
2. Discuss the personal qualifications and educational/training requirements of careers classified in this job family.
3. Have students evaluate their suitability for employment in those careers classified in the education job family.

Cluster: Public Services
Activity III: The Mail Room

A. **Purpose of Activity:** This activity simulates the nature of work associated with the postal services job family.

B. **Basic Skills Applications:** In completing this activity, students will apply the following fundamental academic principles:

- Make decisions accurately and quickly.
- Perceive differences in detail.
- Exhibit productive work habits and attitudes.
- Follow both oral and written directions.

C. **Approximate Time Required:** One class period.

D. **Materials Needed:**

Material	Source
Cardboard six-pack drink cartons (2 for each distribution station)	Grocery store
Addressed 3-in. x 5-in. file cards (50 per distribution station)	School supply
Clock or watch	Locally supplied
City Scheme	Included, reproduce
Scissors, 6-in. blades	School supply

E. **Before You Start:**

1. Construct the case of letter distribution compartments by taping or stapling two cardboard six-pack cartons together side by side. Cut the handles off the cartons to make the open end of the case even. Construct one case for each distribution station desired.
2. Type or write a three-line address on 50 3-in. x 5-in. file cards for each station constructed. (Students may assist.) Address the cards in random fashion using streets or utility companies from the attached city scheme. See examples below:

Ms. Mary Brown
1402 South Street
Dallas, Texas 75428

Mr. Bill Smith
2716 Broad Street
Dallas, Texas 75428

Everything Dept. Store
1800 Main Street
Dallas, Texas 75428

City Gas Company
P.O. Box 12
Dallas, Texas 75428

Note: *For realism, make the city and zip code your own.*

3. Reproduce and laminate a copy of the attached city scheme for each distribution station set up.
4. Describe to the students the procedure to be followed. Also explain that this activity, modified to "throw" 100 cards in eight minutes, is used as a mandatory employability test by the U.S. Postal Service.

F. Step-by-Step Procedure:

1. When directed, the student should go to a distribution station and become familiar with distribution city scheme and instructions.
2. After becoming familiar with the scheme and instructions, the student should obtain a set of 50 addressed cards. Make sure there are 50.
3. Standing upright in front of the case of compartments, the student should hold all 50 cards in one hand and while reading the addressed cards one at a time, distribute them into the appropriate compartments according to the posted scheme. The student should distribute all cards without stopping.
4. After the initial practice run, repeat "casing" all 50 cards as quickly and as accurately as possible. A good time for "casing" 50 cards would be four minutes.

G. Follow-Up:

1. Discuss the advantages and disadvantages of the nature of work associated with the postal services job family.
2. Discuss the personal qualifications and educational/training requirements of careers classified in this job family.
3. Have students evaluate their suitability for employment in those careers classified in the postal services job family.

City Street	Mail Carrier Routes(boxes)
Main Street	——1601
North Street	——1601
South Street	——1602
East Street	——1602
Main Street 2100 To End	——1603
West Street	——1603
Brown Street	——1604
Green Street	——1604
Red Street	——1605
Blue Street	——1605
White Street	——1606
Black Street	——1607
Broad Street	——1608
Extra Broad Street	——1609
City Water Co.	——Hold P.O. Box 1
City Power Co.	——Hold P.O. Box 2
City Gas Co.	——Hold P.O. Box 12

CITY SCHEME
ZIP 72166

1601	1602	1603	#1 CITY WATER CO.
1604	1605	1606	#2 CITY POWER CO.
1607	1608	1609	#3 CITY GAS CO.

Casing Instructions: Distribute mail (cards) in the case of compartments according to the above scheme. Example: card addressed 1001 South Street goes in box designated 1602.

Cluster: Transportation
Activity I: Motor Vehicle Inspection

A. **Purpose of Activity:** This activity simulates the nature of work associated with the highway transport job family.

B. **Basic Skills Applications:** In completing this activity, students will apply the following fundamental academic principles:

- Follow both oral and written directions.
- Exhibit productive work habits and attitudes.

C. **Approximate Time Required:** One class period.

D. **Materials Needed:**

Material	Source
Vehicle inspection form	Included
Scrap rags	Provided by students
Tire tread depth gauge	Local auto parts store or vocational auto mechanics shop
Tire air pressure gauge	Local auto parts store or vocational auto mechanics shop
Waterless hand cleaner (1 per class)	Local auto parts store or vocational auto mechanics shop
Roll of paper towels	School supply

E. **Before You Start:**

1. Obtain the clean scrap rags and tire pressure/depth gauges.
2. Reproduce sufficient vehicle inspection forms to have at least one per student. Make overhead transparency of form.
3. Make arrangements with other faculty members for their cars to be given free safety inspections.
4. Precede the activity with a brief discussion of the importance of highway transportation to the maintenance of our economic system. Discuss the need for safe and efficient operation of motor vehicles and how the state vehicle inspection system supports this need.

F. **Step-by-Step Procedure:**

1. Advise students that they are going to operate an Career Investigation Vehicle Inspection Station (CIVIS).
2. Have the class elect two class members to be the service advisor and the assistant, who will manage the CIVIS.
3. Organize the class into vehicle inspection teams of 3 to 5 students each.

4. Distribute and explain the vehicle inspection forms, using the transparency.
5. The student service advisor and the assistant direct the teams in inspecting the cars. The assistant will keep a record of all vehicles inspected.
6. Conclude the activity by discussing the results of the inspection. Allow students to use the waterless hand cleaner and paper towels to wash their hands.

Note: *Checking the oil and battery water levels is optional.*

G. Follow-Up:

1. Discuss the advantages and disadvantages of the nature of work associated with the highway transport job family.
2. Discuss the personal qualifications and educational/training requirements of careers classified in this job family.
3. Have students evaluate their suitability for employment in those careers classified in the highway transport job family.

Vehicle Inspection Form

Vehicle Owner ______________________________

Directions: Inspect all tems listed below. Mark "x" for defects or "✓" for satisfactory. If vehicle passes, separate bottom portion of form and tape onto inside of left front side window. If vehicle fails, turn in bottom portion of form to service advisor or assistant. Give top part of form to vehicle owner in every case.

	Inspected Item	Result
1.	Tire air pressure (26-32 psi range acceptable)	
2.	Tire tread depth (3/32 in. minimum)	
3.	Windshields (front, driver's side free of cracks)	
4.	Windshield wiper (rubber all in one piece)	
5.	Headlights (high and low beams work)	
6.	Tail lights	
7.	Brake lights	
8.	Direction signals	
9.	Oil level (not more than 1 quart low) Optional	
10.	Battery water level (fill if necessary) Optional	

Separate along this line and distribute according to above directions.

- -

Career Investigation Safety Inspected

The below listed vehicle is certified as being highway ready. This certification does not include driver.

Vehicle Owner ______________________________
Vehicle Description ______________________________
Vehicle License ____________________ Date ______________
Safety Inspectors ______________________________
____

Cluster: Transportation
Activity II: The Airlines Industry

A. **Purpose of Activity:** This activity simulates the nature of work associated with the airline transport job family.

B. **Basic Skills Applications:** In completing this activity, the student will apply the following fundamental academic principles:

- Interpret a chart.
- Rearrange information for a specific purpose.
- Follow both oral and written directions.
- Exhibit productive work habits and attitudes.

C. **Approximate Time Required:** One class period.

D. **Materials Needed:**

Material	**Source**
Typewriters to simulate computer terminals (optional)	School office or vocational office education class
Baggage regulations signs	Secure from local airline
Airline quick reference schedule	Secure from local airline
Boarding pass examples	Secure from local airline
Baggage tag examples	Secure from local airline
Seat assignment chart (3 or 4 per class)	Secure from local airline
Personal flight schedule (1 per student)	Included

E. **Before You Start:**

1. Consider a class study tour to a local airport, having an airline employee visit the class, or viewing an audiovisual related to the airlines industry.
2. If desired, make arrangements for the loan of one or two typewriters to simulate airline computer terminals.
3. Reproduce sufficient copies of the seat assignment chart and personal flight schedule.

   Note: *The personal flight schedule form, included, is to be cut into four pieces after it is reproduced.*

4. Set up one or more centers to simulate an airline ticket counter. Included in the center might be the typewriter/terminal, the baggage regulations signs, airline schedules, and posted examples of the boarding passes and baggage tags.
5. If 4 is not accomplished, consider preparing a bulletin board on the airline industry and arranging a display of the boarding passes, baggage tags and signs, and the airline schedules.

F. Step-by-Step Procedure:

1. Using information contained in job briefs, the *D.O.T.*, and the *Occupational Outlook Handbook*, discuss the job characteristics of the following airline employees:

   Flight reservationist (ticket sales)

   Booking agents (charter flight planners)

   Gate attendants (plane loaders)

Be sure to explain that each of the above employees is required to render a service to an individual consumer on a personal basis, while being a part of a larger team.

2. Call attention to the simulated ticket counter and to the materials. Explain that the typewriter represents an airline computer terminal and that the students will use the keyboard to type questions or answers about flight reservation information. Examples of such questions or answers are:

   One first class, flt 409, Dallas to Little Rock, available?

   One first class, flt 409, Dallas to Little Rock confirmed!
3. Distribute a personal flight schedule form to each student. Instruct class members to pair off and plan a one-way flight from Dallas to another city for their partner, using the airline quick reference schedule. Record the planned flight on the personal flight schedule form provided.
4. Select three or four student volunteers to be gate attendants and set up stations within the classroom to check in a flight. Equal groups of students line up at the stations, with their completed personal flight schedule forms, to check in. Using the seat assignment chart to record passage through the gate, the gate attendant determines whether the passenger wants a window, aisle, or center seat
5. The activity could be concluded at this point or extended to simulate boarding the aircraft. Have flight attendants serve passengers in flight.

G. Follow-Up:

1. Discuss the advantages and disadvantages of the nature of work associated with the airline transport job family.
2. Discuss the personal qualifications and educational/training requirements of careers classified in this job family.
3. Have students evaluate their suitability for employment in those careers classified in the airline transport job family.

PERSONAL FLIGHT SCHEDULE

FROM: ____________________

DESTINATION: ____________________

SEAT PREFERENCE: ____________________

FIRST CLASS: ☐

COACH: ☐

PRICE: ____________________

PERSONAL FLIGHT SCHEDULE

FROM: ____________________

DESTINATION: ____________________

SEAT PREFERENCE: ____________________

FIRST CLASS: ☐

COACH: ☐

PRICE: ____________________

PERSONAL FLIGHT SCHEDULE

FROM: ____________________

DESTINATION: ____________________

SEAT PREFERENCE: ____________________

FIRST CLASS: ☐

COACH: ☐

PRICE: ____________________

PERSONAL FLIGHT SCHEDULE

FROM: ____________________

DESTINATION: ____________________

SEAT PREFERENCE: ____________________

FIRST CLASS: ☐

COACH: ☐

PRICE: ____________________

Cluster: Transportation
Activity III: Bon Jamie's Bus Driver

A. **Purpose of Activity**: This activity simulates the nature of work associated with the highway transport job family.

B. **Basic Skills Applications**: In completing this activity, students will apply the following fundamental academic principles:

- Utilize basic mathematics (addition, subtraction, and multiplication).
- Follow both oral and written directions.
- Translate information from one medium to another.
- Read a map to locate pertinent information.
- Exhibit productive work habits.

C. **Approximate Time Required**: One class period.

D. **Materials Needed:**

Material	Source
Activity sheet	Included
Calculators (if needed)	Provided by student
Rulers (one for each student)	Provided by student
Pencils/pens	Provided by student

E. **Before You Start:**

1. Consider coordinating this activity with the mathematics or social studies teacher.
2. Reproduce sufficient copies of the activity sheet.
3. Contact a bus driver in your community to speak to your class concerning the highway transport field. If possible, have the bus driver bring his/her bus and conduct the interview in the bus.

F. **Step-by-Step Procedure:**

1. Discuss the importance of math skills in transportation careers.
2. Allow students to interview a bus driver and/or use other occupational resources to obtain pertinent job-related information.
3. Assist students in completing the activity sheet.

G. **Follow-Up:**

1. Check answers in class and help students determine where errors occurred.

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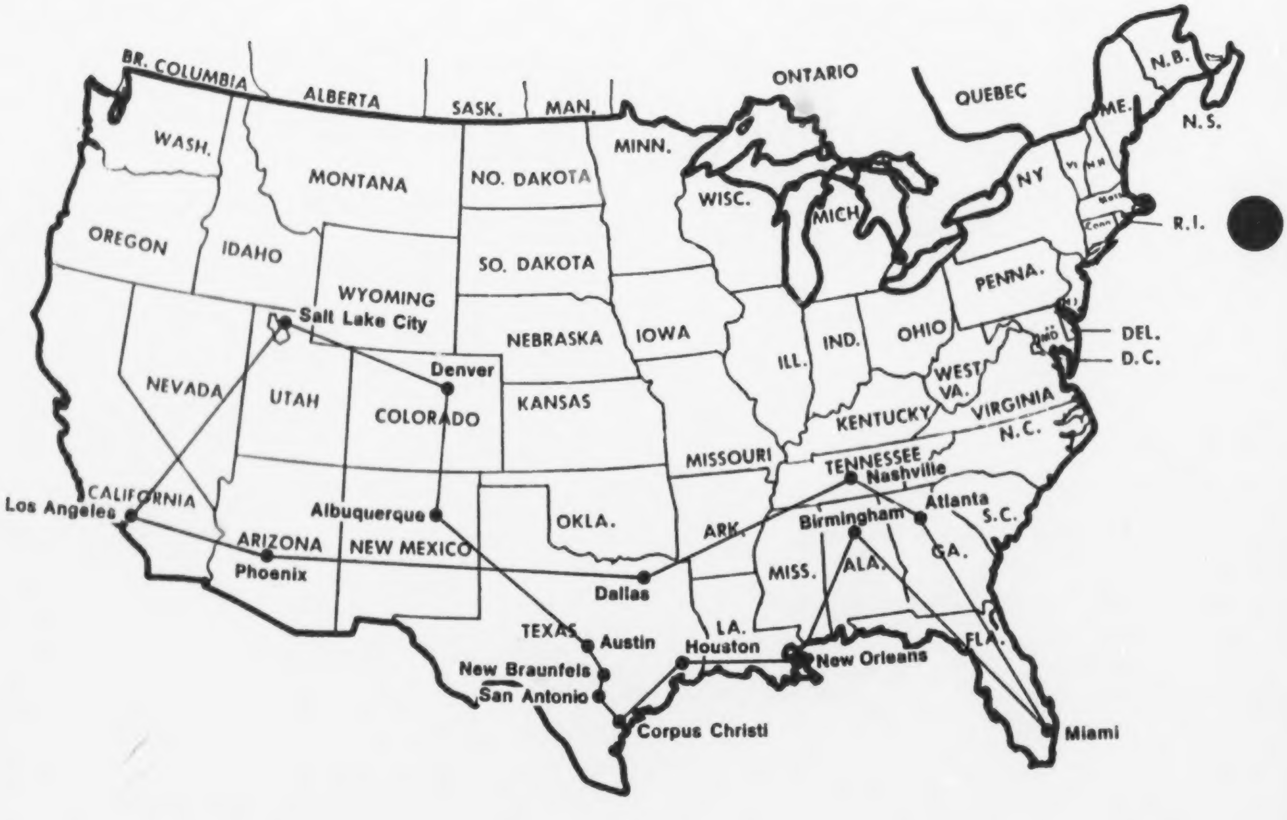
2. Emphasize that even in careers considered relatively unskilled, math skills are vital to job success.
3. Help students determine their strengths/weaknesses in this activity. Talk about ways to improve their weaknesses.
4. Discuss other careers in the Transportation Cluster.
5. Have students think about and/or discuss whether they would be successful and enjoy a career in the Transportation Cluster.

H. Answers to Activity Sheet:

1.


BR. COLUMBIA
ALBERTA
SASK.
MAN.
ONTARIO
QUEBEC
N.B.
N.S.
ME.
WASH.
MONTANA
NO. DAKOTA
MINN.
WISC.
MICH
NY
VT
NH
Mass
Conn
R.I.
OREGON
IDAHO
SO. DAKOTA
WYOMING
Salt Lake City
PENNA.
NEBRASKA
IOWA
ILL.
IND.
OHIO
N.J.
MD
DEL.
D.C.
NEVADA
UTAH
Denver
COLORADO
KANSAS
WEST VA.
VIRGINIA
KENTUCKY
N.C.
MISSOURI
TENNESSEE
Nashville
CALIFORNIA
Los Angeles
Albuquerque
OKLA.
ARK.
Birmingham
Atlanta
S.C.
ARIZONA
NEW MEXICO
Phoenix
Dallas
MISS.
ALA.
GA.
TEXAS
Austin
LA.
Houston
New Orleans
FLA.
New Braunfels
San Antonio
Corpus Christi
Miami

2.

Beginning Odometer Reading	Destination	Ending Odometer Reading	Total Miles
18978	Austin, Tex.	19098	120
19098	Albuquerque, N.Mex.	19826	728
19826	Denver, Colo	20242	417
20243	Salt Lake City, Utah	20747	504
20747	Los Angeles, Calif.	21462	715
21462	Phoenix, Ariz.	21851	389
21851	Dallas, Tex.	22849	998
22849	Nashville, Tenn.	23509	660
23509	Atlanta, Ga.	23751	242
23751	Miami, Fla.	24406	655
24406	Birmingham, Ala.	25157	751
25157	New Orleans, La.	25499	342
25855	Corpus Christi, Tex.	26083	228
26083	San Antonio, Tex.	26217	134
26217	New Braunfels, Tex.	26255	38

3. 7277
4. $20,011.75
5. $15,032.21

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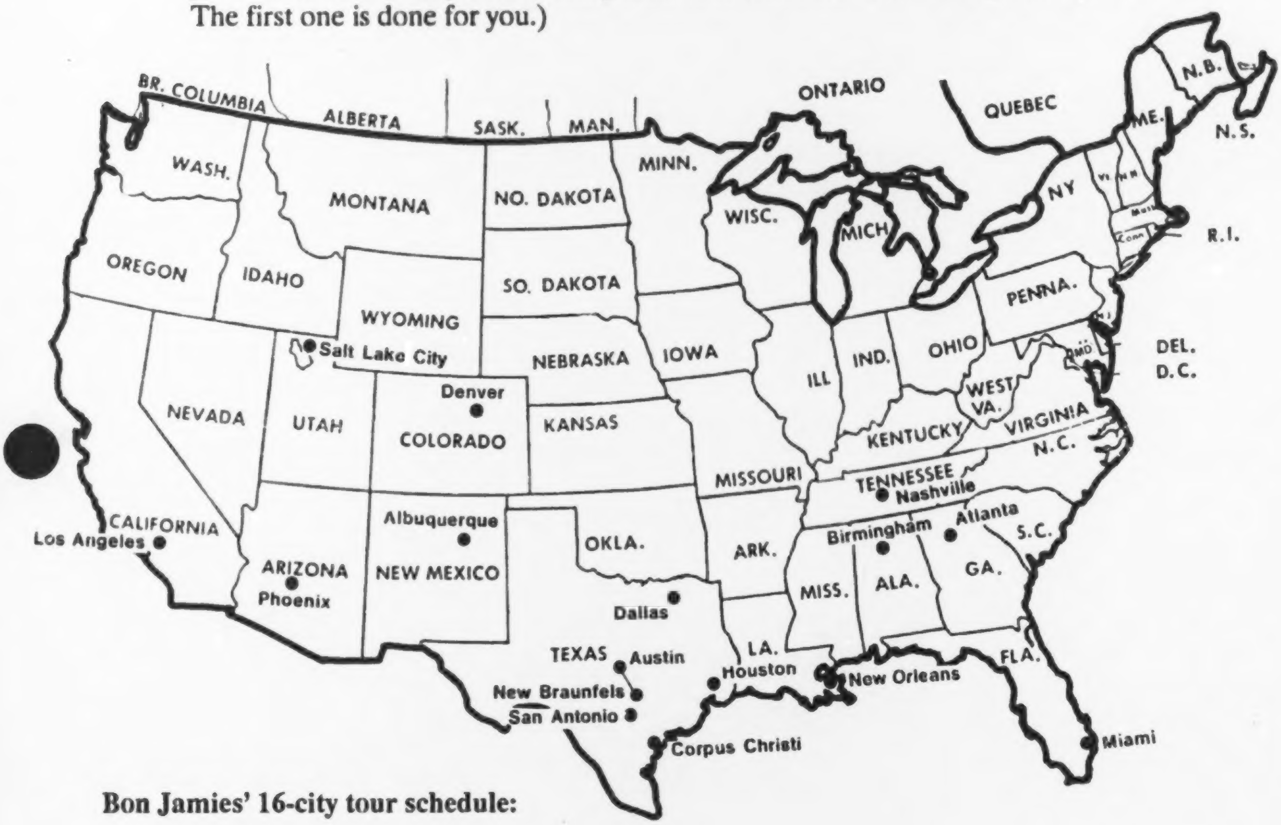
Activity Sheet

Directions: To be successful, bus drivers need more than a safe driving record and a love for travel. Bus drivers must be able to read maps and use math skills. Would you make a good bus driver? To find out, complete the following problems.

1. A famous rock group, Bon Jamie, has chartered your bus for their next tour. You will be driving them to sixteen cities in the United States, where they will appear in concert. Bon Jamie wants you to make a map showing the most direct route. Draw your route on the map below, using their tour schedule below as a guide. (Hint: The first one is done for you.)


BR. COLUMBIA
ALBERTA
SASK.
MAN.
ONTARIO
QUEBEC
N.B.
ME.
N.S.
WASH.
MONTANA
NO. DAKOTA
MINN.
WISC.
MICH.
NY
VT
NH
MASS
CONN
R.I.
OREGON
IDAHO
SO. DAKOTA
WYOMING
PENNA.
N.J.
Salt Lake City
NEBRASKA
IOWA
ILL
IND.
OHIO
MD
DEL.
D.C.
NEVADA
UTAH
Denver
COLORADO
KANSAS
WEST VA.
VIRGINIA
KENTUCKY
N.C.
MISSOURI
TENNESSEE
Nashville
CALIFORNIA
Los Angeles
Albuquerque
OKLA.
ARK.
Birmingham
Atlanta
S.C.
ARIZONA
Phoenix
NEW MEXICO
Dallas
MISS.
ALA.
GA.
TEXAS
Austin
LA.
Houston
New Orleans
FLA.
New Braunfels
San Antonio
Corpus Christi
Miami

Bon Jamies' 16-city tour schedule:

- June 11-Austin, Texas a
- June 13-Albuquerque, New Mexicoa
- June 14-Denver, Colorado
- June 16-Salt Lake City,
- June 19-Los Angeles, California
- June 21-Phoenix, Arizona
- June 24-Dallas, Texas
- June 26-Nashville, Tennesse
- June 27-Atlanta, Georgia
- June 29-Miami, Florida
- July 1-Birmingham, Alabama
- July 2-New Orleans, Louisiana
- July 4-Houston, Texas
- July 5-Corpus Christi, Texas
- July 7-San Antonio, Texas
- July 8-New Braunfels, Texas

2. Bon Jamie hired you because they want a trustworthy driver who can help them keep their travel costs down. Therefore, you must figure mileage accurately. This is an important duty for any bus driver.
   The tour is over now. Complete the following chart by writing in the column to the right the total number of miles traveled between each city.
   (Hint: The first one is done for you.)

Beginning Odometer	Destination	Ending Odometer Reading	Total Miles
18978	Austin, Tex.	19098	**120**
19098	Albuquerque, N.Mex.	19826	
19826	Denver, Colo	20242	
20243	Salt Lake City, Utah	20747	
20747	Los Angeles, Calif.	21462	
21462	Phoenix, Ariz.	21851	
21851	Dallas, Tex.	22849	
22849	Nashville, Tenn.	23509	
23509	Atlanta, Ga.	23751	
23751	Miami, Fla.	24406	
24406	Birmingham, Ala.	25157	
25157	New Orleans, La.	25499	
25855	Corpus Christi, Tex.	26083	
26083	San Antonio, Tex.	26217	
26217	New Braunfels, Tex.	26255	

3. What is the total number of miles traveled? ______________________

4. If you had agreed to drive the bus for $2.75 per mile, how much would you earn?
   ____

5. If you had expenses for the trip of $4,979.54, what would be your net profit?
   ____

COMPLIANCE STATEMENT

TITLE VI, CIVIL RIGHTS ACT OF 1964; THE MODIFIED COURT ORDER, CIVIL ACTION 5281, FEDERAL DISTRICT COURT, EASTERN DISTRICT OF TEXAS, TYLER DIVISION

Reviews of local education agencies pertaining to compliance with Title VI Civil Rights Act of 1964 and with specific requirements of the Modified Court Order, Civil Action No. 5281, Federal District Court, Eastern District of Texas, Tyler Division are conducted periodically by staff representatives of the Texas Education Agency. These reviews cover at least the following policies and practices:

(1) acceptance policies on student transfers from other school districts;

(2) operation of school bus routes or runs on a non-segregated basis;

(3) nondiscrimination in extracurricular activities and the use of school facilities;

(4) nondiscriminatory practices in the hiring, assigning, promoting, paying, demoting, reassigning, or dismissing of faculty and staff members who work with children;

(5) enrollment and assignment of students without discrimination on the basis of race, color, or national origin;

(6) nondiscriminatory practices relating to the use of a student's first language; and

(7) evidence of published procedures for hearing complaints and grievances.

In addition to conducting reviews, the Texas Education Agency staff representatives check complaints of discrimination made by a citizen or citizens residing in a school district where it is alleged discriminatory practices have occurred or are occurring.

Where a violation of Title VI of the Civil Rights Act is found, the findings are reported to the Officer for Civil Rights, Department of Health, Education and Welfare.

If there is a direct violation of the Court Order in Civil Action No. 5281 that cannot be cleared through negotiations, the sanctions required by the Court Order are applied.

TITLE VII, CIVIL RIGHTS ACT OF 1964; EXECUTIVE ORDERS 11246 AND 11375; TITLE IX, 1973 EDUCATION AMENDMENTS; REHABILITATION ACT OF 1973 AS AMENDED; 1974 AMENDMENTS TO THE WAGE-HOUR LAW EXPANDING THE AGE DISCRIMINATION IN EMPLOYMENT ACT OF 1967; AND VIETNAM ERA VETERANS READJUSTMENT ASSISTANCE ACT OF 1972 AS AMENDED IN 1974.

It is the policy of the Texas Education Agency to comply fully with the nondiscrimination provisions of all federal and state laws and regulations by assuring that no person shall be excluded from consideration for recruitment, selection, appointment, training, promotion, retention, or any other personnel action, or be denied any benefits or participation in any programs or activities which it operates on the grounds of race, religion, color, national origin, sex, handicap, age, or veteran status (except where age, sex, or handicap constitute a bona fide occupational qualification necessary to proper and efficient administration). The Texas Education Agency makes positive efforts to employ and advance in employment all protected groups.